

HyNet North West Hydrogen Pipeline

Delivering clean growth



Appendix 11B

Draft Outline Construction Traffic Management Plan

October 2024

Revision 1

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1. Introduction

- 1.1.1. This Draft Outline Construction Traffic Management Plan (CTMP) is Appendix 11B to **Chapter 11: Traffic and Transport** of the Draft ES for the HyNet North West Hydrogen Pipeline Project (here after referred to as 'the Project') which is a proposal by Cadent Gas Ltd (hereafter 'the Applicant'). This appendix should be read in conjunction with **Chapter 2: The Project** and **Chapter 11: Traffic and Transport**. This Draft Outline CTMP is the second draft of what will be an evolving document throughout the Development Consent Order (DCO) application process. It will be updated as the elements of the Project are further developed through the ongoing design process and following feedback from the final stage of pre-application Stage Three Statutory Consultation.
- 1.1.2. An updated version of this Outline CTMP will be submitted in support of the DCO application.
- 1.1.3. This document details the environmental measures which may be implemented in relation to the traffic generated during the construction phase of the Project. It has been prepared to ensure that the proposed management and mitigation measures minimise the likely effects on existing road users during the construction phase. The primary objectives of an Outline CTMP are as follows:
- ensure the movement of people and materials in a safe, efficient, timely, and sustainable manner;
 - keep construction traffic to a minimum during peak network periods to reduce the impact on the highway network;
 - ensure that effects and disruption on local communities is minimised;
 - minimise vehicle trips where possible; and
 - limit the impacts on the natural and built environment.
- 1.1.4. The Project includes the construction and operation of approximately 100km of new pipeline to distribute hydrogen to industry in the North West. A number of Hydrogen Above Ground Installations (HAGIs), including Block Valve Installations (BVIs) are required to control the flow and pressure of hydrogen at key points along the proposed pipeline.
- 1.1.5. The Project connects the Hydrogen Production Plant (HPP) at the Stanlow site, as the source of hydrogen, for onward distribution to the network. The pipeline transports hydrogen to the Central Hub at the centre of the network, which then serves as the connection and onward distribution point to the North, East and South corridors, which would extend to St. Helens, Partington and Northwich respectively. Branching off from each main corridor would be pipeline spurs connecting hydrogen customers to the main pipeline. Infrastructure has also been included which supports the potential blending of hydrogen with methane in the existing gas network. The Project would also link to underground hydrogen storage facilities in Cheshire used to balance supply and demand through the network. The proposed key components of the Project are as follows:

- Hydrogen Pipeline Network (HPN) across the north-west region:
 - ▶ West Corridor: Stanlow Hydrogen Production Plant (HPP) to the Rocksavage HAGI, to the Central Hub HAGI including the Runcorn/Rocksavage Spur to customers at Intergen, Rocksavage.
 - ▶ North Corridor: Central Hub HAGI to the Higher Walton HAGI to the Clock Face HAGI including the Warrington Spur(s) to Ingevity, Clockface Spur to NGF Europe Ltd and St Helens Spur to Pilkington UK's Greengate Works, St Helens and Glass Futures.
 - ▶ East Corridor: Central Hub HAGI to the Warburton HAGI to the Partington HAGI, incorporating BVI and the Warburton Spur to the existing Cadent AGI and Partington Spur to the Partington Cadent AGI and Bassel Polyfins.
 - ▶ South Corridor: Central Hub HAGI to Hydrogen Storage Facility (HSF) incorporating a BVI.

1.1.6. During the construction phase, construction compounds, accesses and on-site haul roads. The Project would have a direct effect on local roads through crossings of the highway network and the conveyance of construction traffic on the highway network, resulting in the need for a Construction Traffic Management Plan (CTMP).

1.2. Structure of the Preliminary CTMP

1.2.1. The remainder of this Preliminary CTMP is set out as follows:

- **Section 2: The Project** – sets out the description of the Project and the components and vehicles that will be required, this is to inform the Draft Outline CTMP;
- **Section 3: Proposed Access Strategy** – sets out the Access Strategy proposed during the construction phase;
- **Section 4: HGV Access Strategy** – sets out the construction Heavy Goods Vehicle (HGV) Access Strategy;
- **Section 5: Light Vehicle Routing Strategy** – sets out the Light Vehicles (LV) Access Strategy;
- **Section 6: Crossing Schedule** – sets out other construction impacts;
- **Section 7: Potential Mitigation Strategies** - sets out the potential mitigation strategies; and
- **Section 8: Management of the CTMP and enforcement** – sets out the proposed management structure for the final, detailed CTMP.

2. The Project

- 2.1.1. This Outline Draft CTMP has been prepared to set out the framework for the management and mitigation on the strategic road network (SRN) and local road network (LRN), related to the construction works required for the Project across the north-west region. Details on the Project are set out in **Chapter 2: The Project**. The Project includes for four corridors across the north-west and the details of each are summarised below, for further details refer to **Chapter 2: The Project**. It should be noted the Central Hub HAGI links and forms a part of all four corridors.

2.2. West Corridor

- 2.2.1. The West Corridor (including a spur off it) is composed of the following elements:
- Pipeline - Stanlow Hydrogen Production Plant (HPP) to the Rocksavage HAGI to the Central Hub HAGI;
 - Rocksavage HAGI;
 - Runcorn HAGI;
 - Pipeline Runcorn/Rocksavage Spur route from Rocksavage HAGI to the Runcorn HAGI to Interger, Rocksavage. It would also facilitate connection to Inovyn, Runcorn.
- 2.2.2. In traffic and transport terms the West Corridor broadly follows the M56 corridor before a spur north crosses the River Weaver and Weaver Navigation into south Runcorn along broad route of the Western Point Expressway. The remainder of the route runs south of the M56 along the route of the A533 before crossing this into the central HAGI.

2.3. North Corridor

- 2.3.1. The North Corridor (including spurs off it) is composed of the following elements:
- Pipeline – Central Hub HAGI to the Higher Walton HAGI to the Clock Face HAGI;
 - Clock Face HAGI;
 - Higher Walton HAGI;
 - Pipeline Warrington Spur(s) route from the Higher Walton HAGI to Ingevity, Warrington;
 - Pipeline Clockface Spur route from Clock Face HAGI to NGF Europe Ltd; and
 - Pipeline St Helens Spur route from the Clock Face HAGI Pilkington UK's Greengate Works and Glass Futures.
- 2.3.2. At this stage there is some optionality to consider:

- There are two trenchless crossing exit locations and continuation of route options considered either Gainsborough Road (WSp1) or Cranbourne Avenue (WSp3).

2.3.3. In traffic and transport terms this North Corridor heads north from the central HAGI crossing the M56 and A56 south and south-west of Warrington. In Warrington there is a spur that results in approximately 3.6km of pipeline to be installed in the highway from the town centre to a site on Thelwall Lane. The route continues north/north-west from Warrington over the Manchester Ship Canal and River Mersey to the crossing the A5080 and then M62 before entering southern St Helens and broadly entering the town on the St Helens Link Way corridor.

2.4. East Corridor

2.4.1. The East Corridor (including spurs off it) is composed of the following elements:

- Pipeline - Central Hub HAGI to the Warburton HAGI to the Partington HAGI;
- Warburton HAGI;
- Partington HAGI;
- A Block Valve Installation (BVI) between Central Hub HAGI and the Warburton HAGI;
- Pipeline Warburton Spur route from Warburton HAGI to the existing Cadent AGI; and
- Pipeline Partington Spur route from the Partington HAGI to the Partington Cadent AGI and Bassel Polyfins. It would also facilitate connection to ESB Power.

2.4.2. At this stage there is some optionality to consider:

- There are two Partington HAGI locations (PH1 and PH2).

2.4.3. In traffic and transport terms the east corridor runs from the Central Hub HAGI north-east across a rural area across the A49 and A559 before crossing the M6. East of the M6 the route continues north-east across the M56 and A56 before continuing through rural areas to Partington.

2.5. South Corridor

2.5.1. The South Corridor is composed of the following elements:

- Pipeline - Central Hub HAGI to HSF including a BVI.

2.5.2. At this stage there is some optionality to consider:

There are two route options where the corridor approaches the Trent and Mersey Canal near Bartington SP5 and SP6.

- 2.5.3. In traffic and transport terms, the South Corridor runs along the route of the A49, crossing the A49 north of Sandiway. The route then runs south-east over the River Weaver to just north of Winsford and then east across the A553 and A530 to the salt caverns located north of Middlewich.
- 2.5.4. **Figure 2.1** illustrates the Draft Order Limits and some of the key roads in the north-west.

2.6. Additional Construction Phase Details

Construction Site Preparation

Public Rights of Way (PRoW)

- 2.6.1. Safe crossing points would be implemented e.g. where a Public Right of Way (PRoW) crosses the working width. Where necessary, a temporary closure and diversion will be put in place and signage provided. Where an access point is required along a PRoW creation of a temporary shared route with users will be proposed. A Draft Outline PRoW Management Plan (PRoWMP) has been developed for the Draft ES Submission (**Appendix 11C Draft Outline PRoWMP**) which sets out details of the impacts, management and proposed mitigation.

Access

- 2.6.2. At this stage, accesses to the Project working area have been identified and details of these locations, as well as the proposed access strategy, are set out in this Draft Outline CTMP. The accesses and requirements for improvements at these points e.g. visibility splays, and bellmouths and widening will be subject to further design and consultation with the appropriate highways authorities on a location-by-location basis. The measures will be secured as part of a full Construction Traffic Management Plan (CTMP) to be submitted to each relevant local highway authority prior to construction of the DCO Project. **Figure 2.2 to 2.4** sets out the anticipated initial bellmouth designs for the three types of access on the Project that may be used. The access track design would be informed by the particular site conditions along the access route.
- 2.6.3. Access routes to construction working areas would be implemented prior to any works commencing to provide suitable access for construction plant and traffic. This element of construction could also include vegetation removal and management, the construction of bellmouths at access entrances from the public highway, wheel wash/'rumble strip' facilities, where required, to remove excess material before vehicles re-join the highway, fencing and gateways to keep livestock and the public away from construction activities, drainage, and where required culvert crossings and temporary bridges to cross watercourses. Construction works would be phased, and access routes implemented prior to each element or phase of the Project being constructed. Various surfaces would be used for the temporary access tracks depending on ground conditions. Access routes will be prepared using the following list of activities:
- Minor Access: Use of existing access routes with minimal, if any, improvements required.

- Panel: These comprise temporary metal, timber (bog mats) or plastic interlocking panels normally laid directly onto the ground and delivered to site by HGV, which would off load and layout panels. This form of access would be typically 3m in width and all panels would be removed once construction works have been completed.
- Stone: These surfaces are typically formed of imported stone (or crushed rock) on a geotextile membrane. Topsoil is removed and stockpiled, and a geotextile membrane laid to separate the stone from the underlying soil. Stone is delivered via tipper trucks, spread on site and using a vibrating roller compacted to the desired finish. The final finish is generally gently cambered to aid with removal of water and sits just above the existing ground level on either side. The stone road is dismantled in the reverse procedure, geotextile membrane recovered and ground reinstated. Stone access routes would be 4.5m - 7.0m wide excluding any soil storage or fencing running along the access.

2.6.4. When deciding upon the appropriate surfacing material consideration will be given to its use by others (for example if it crossing a PRoW or would be used as a temporary diversion). Certain surfaces may not be suitable for horses for example.

2.7. Crossing Techniques

2.7.1. A crossing schedule has been developed to inform the Draft ES assessments and details relevant to traffic and transport are set out in further detail in this Draft Outline CTMP. The types of crossings proposed are set out in the following sections.

Open Cut

2.7.2. Open cut installation involves the excavation of a trench across the feature to be crossed and the installation of the pipeline in the trench. This method is typically used for minor roads, tracks, streams and ditches.

2.7.3. At each crossing point it is necessary to install the pipeline beneath the feature being crossed and provide a means of crossing for construction plant and vehicles.

2.7.4. Open cut installation at minor roads would typically involve the following stages:

- Implementation of traffic control measures (subject to agreement with the Highways Authority) to ensure safety and minimise disruption. Works would be undertaken in as short a timeframe as possible, typically five days or less;
- identification of services and protection as required;
- cutting of the road surface at the trench edges using a road saw;
- excavation of the trench to the required depth;
- installation of the pipe or a construction sleeve for installation of the pipeline at a later date; and

- backfilling of the trench and resurfacing undertaken in accordance with the requirements of the relevant highways authority.

2.7.5. Construction plant and vehicles must be able to cross from one side of a road for onward access to the route. This involves tracking major plant across the road for which traffic control measures and service protection would be undertaken as above. The road surface would be protected using rubber matting or similar, or by use of a temporary surface such as sand or a temporary sacrificial tarmac surface. Measures would be put in place to ensure the highway is clear of debris and any restoration works would be subject to agreement with the highway authority.

2.7.6. The crossing points would be required for the duration of the construction period within the particular section. However, the crossing point would only be in operation when it is necessary to transfer plant or vehicles across. The highway would otherwise remain open to the public as normal for the majority of the time a crossing is in place.

Trenchless crossing techniques

2.7.7. The majority of major road, rail and navigable waterways are proposed to be crossed using trenchless crossing techniques. There are a number of methods by which these crossings would be undertaken, the choice of which is determined by a number of factors including; the feature being crossed; agreements with third parties regarding asset protection; ground conditions; and the length/depth of the crossing. It is not possible to determine which method would be used at each trenchless crossing prior to the establishment of these factors and appointment of the Contractor(s) to undertake the works. The types of crossing could be one of the following;

- Horizontal Directional Drilling (HDD);
- Auger Boring;
- Micro-tunnelling; and
- Direct Pipe.

2.7.8. For all of the methods above, there would be no surface effects or impacts on roads that are crossed.

2.8. Compounds

2.8.1. Temporary Construction Compounds (TCCs) would be established to support the construction of the pipeline and HAGIs. The location and area required for temporary compounds will be subject to further design and route refinement. Key locations are likely to include the HAGI construction sites.

2.8.2. All construction compounds would require vehicle/plant parking and storage areas, as well as associated fuels.

2.9. Working Hours and Employment Proposals

- 2.9.1. Standard construction working hours would be ten hours per day (08:00 to 18:00) from Monday to Saturday, with no works on Sundays or Bank Holidays. There may be the need for some extended working hours for certain activities, but this would be subject to agreement with the local Planning Authority
- 2.9.2. There would be the need for continuous (24-hour) working for some activities including the following:
- Tunnelling and HDD;
 - pipe pulling at trenchless crossings;
 - highways works, to ensure temporary closures minimise the potential for daytime disruption; and
 - pipeline testing.
- 2.9.3. Construction traffic working hours are considered in **Section 7.3**.
- 2.9.4. A number of works would be expected to occur in parallel, however, the exact phasing of the works will be determined with the appointed contractor and shared with the relevant planning authorities.
- 2.9.5. Construction is expected to commence in early 2027 and commissioning in early 2030. The Project would be fully operational by 2030.
- 2.9.6. Pipelines are constructed within the pipeline “spread” or temporary working width which is a corridor of land extending along the route. Pipe laying can be likened to a production line with successive activities moving along the spread. Activities include site preparation, pipeline stringing, welding, inspection, laying and testing. Once complete, reinstatement would be undertaken across the temporary working width.
- 2.9.7. During construction, there would be several phases of works and some of these would have effects on differing elements of the highways network at differing times. It is estimated that the peak of construction works would occur in 2027/2028 as set out in **Chapter 11: Traffic and Transport** of the Draft ES.

2.10. Pipeline Proposed in the Highway

- 2.10.1. The proposals for the routes at this stage of the Project include key sections of pipeline to be constructed in the adopted highway for which no dedicated access point is required. These are all within the North Corridor and the urban areas. The sections of pipeline are as follows.
- Section 1 - A 2.73km route in Warrington that runs from the junction Gainsborough Road and the A5060 and routes east along Gainsborough Road (with an option to use Cranborne Avenue), Loushers Lane, Wash Lane, Station Road to the A50.

- Section 2 - A 425m route in east Warrington that runs from the junction of Clearwater Quays, Thelwall Lane/Powder Mill Road along Thelwall Lane to the east to the entrance to an industrial facility.
- Section 3 - A 185m route in south St Helens along Lea Green Road between the junction with Chapel Lane and the entrance to industrial properties and includes a widened Draft Order Limit to facilitate the option of using a longer section of Chapel Lane.
- Section 4 - A 1.896km route in west St Helens along the B5204 Elton Head Road and Sherdley Road in Sutton Heath. This links from near the junction of The Broads/B5204 and Sherdley Road and Sutton Heath Road.
- Section 5 - A 686m route in St Helens along Burtonhead Road between the St Helens Linkway and the St Helens HAGI.

2.10.2. **Figure 2.5** sets out the proposed sections of pipeline in the highway.

2.10.3. In addition, there are locations where there is the potential for pipeline to be placed within the highway due to the extent of the Draft Order Limits:

- Chapel Lane (SHBC);
- the A570 between Burtonhead Road and Langtree Way (SHBC); and
- Langtree Way (SHBC).

2.11. Draft Outline CTMP Study Area

2.11.1. The Study Area in the Draft Outline CTMP is the same as that which is presented in **Chapter 11: Traffic and Transport** of the Draft ES and is shown in **Figure 2.1**.

2.11.2. The spatial scope of the Draft Outline CTMP is based on the most probable routes for construction traffic generated by the Project, comprising the movement of deliveries, equipment and of construction staff. Identification of appropriate construction routes takes into consideration the following:

- restrictions such as weight and height limits;
- existing HGV restrictions; and
- suitability of routes based on a review of road types and widths.

2.11.3. The Study Area includes roads operated and maintained by Cheshire West and Chester Council (CWACC), Cheshire East Council (CEC), Trafford Council (TC), Halton Borough Council (HBC), Warrington Borough Council (WBC), St. Helens Borough Council (SHBC) and as local highway authorities and National Highways as the strategic highway authority.

3. Proposed Access Strategy

- 3.1.1. During the construction phase of the Project, temporary construction accesses would be required onto and from the public highway. There would also be a requirement for permanent access during the operation and maintenance phase to allow routine maintenance and inspection of the Project infrastructure. The management of temporary construction accesses during the construction phase is covered within this Draft Outline CTMP.
- 3.1.2. Different temporary construction access designs will be proposed for the Project which will reflect the volume of movements as well as the physical size of the vehicles anticipated to use the respective access points. The construction phase access points would not all be used by significant amounts of traffic as some accesses would be used for LVs only, smaller deliveries or minor works.
- 3.1.3. At this stage, a worst-case access design has been used at all locations, with visibility splay requirements at each location based on the speed limit of the road at each location. Ongoing assessment may lead to a reduction in the Draft Order Limits presented in the Draft ES when the submission of the DCO application is made to allow for more appropriate access arrangements following engagement with relevant highways authorities. A standard access bellmouth, which provides adequate access provision for construction vehicles, is currently proposed for all accesses. This presents a worst-case in terms of land-take for each access point. The final layout and need for visibility splays is to be reviewed on a case-by-case basis by the contractor and agreed with the local highway authority.
- 3.1.4. The draft design for the Project has identified 160 accesses.

3.2. Location of Proposed Temporary Construction Accesses

- 3.2.1. During the construction phase, temporary construction accesses would be required across the Project spanning a large geographical area across the north-west. Temporary construction accesses would be taken from a range of A, B, C and Unclassified roads as appropriate to provide access to all project locations. **Figure 3.1** shows all proposed access locations. **Table 11B 3.1** to **Table 11B 3.4**, one for each corridor, set out each of the temporary construction accesses including identification (ID) numbers, the type of access required (including what the access is currently like and works required at the access), the road from which they would be accessed and the local authority area they are in. The types of access identified in **Table 11B 3.1** to **Table 11B 3.4** are:
- Construction – full construction accesses for HGVs and LVs;
 - LV – construction accesses for LVs only; and
 - Low HGV Construction – construction accesses that a small number of HGVs are required to use but for the majority of the construction programme the access will function as a LV access only.

3.2.2. It should be noted the tables include all accesses for the limited optionality included in the current design; in the final Outline CTMP the number of accesses may be subject to change.

Table 11B 3.1 Construction Accesses – West Corridor (26 accesses)

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
WH-01	CWACC	Pool Lane	Construction	Existing Bemouth	Pipeline, Trenchless Crossing
WH-02	CWACC	Pool Lane	Construction	Existing Bellmouth	Stanlow HPP HAGI, Pipeline, HAGI Compound, Trenchless Crossing
WH-03	CWACC	Cryers Lane	Construction	None	Trenchless Crossing, Pipeline
WH-04	CWACC	Cryers Lane	Construction	None	Pipeline
WH-05	CWACC	A5117	Construction	Existing Bellmouth	Temporary Construction Compound, Pipeline, Trenchless Crossing
WH-06	CWACC	Ince Road	Construction	New Access Required	Trenchless Crossing, Pipeline
WL-02	CWACC	Lower Rake Lane	LV	End of Highway	Pipeline
WL-03	CWACC	Hatley Lane	LV	Existing Bellmouth	Pipeline
WL-04	CWACC	Marsh Lane	LV	End of Highway	Pipeline
WL-05	CWACC	Ship Street	LV	Existing Bellmouth	Pipeline, Trenchless Crossing
WL-06	CWACC	Ship Street	LV	Existing Bellmouth	Pipeline, Trenchless Crossing
WH-10	HBC	Weaver View	Construction	End of Highway	Pipeline, Runcorn HAGI, HAGI compound

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
WH-12	CWACC	A56	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing, Rocksavage HAGI, HAGI Compound
WH-14	CWACC	A56	Construction	Existing Field Gate Access	Trenchless Crossing, Pipeline
WH-15	CWACC	A56	Construction	Existing Field Gate Access	Trenchless Crossing, Pipeline, Temporary Construction Compound
WH-16	CWACC	Aston Lane	Construction	Existing Field Gate Access	Trenchless Crossing, Pipeline, Temporary Construction Compound
WH-17	CWACC	Aston Lane	Construction	None	Pipeline
WH-18	CWACC	Aston Lane	Construction	None	Pipeline
WH-19	CWACC	Aston Lane	Construction	None	Pipeline, Trenchless Crossing
WH-20	CWACC	Aston Lane	Low HGV Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
WH-21	CWACC	A533	Construction	None	Pipeline, Trenchless Crossing
WH-22	CWACC	A533	Construction	None	Pipeline, Trenchless Crossing
WH-23	CWACC	A533	Construction	Existing Field Gate Access	Pipeline, Central Hub HAGI, HAGI Compound, Temporary Construction Compound
WH-24	CWACC	Ash Road	Construction	None	Pipeline, Trenchless Crossing
WH-25	CWACC	A56	Construction	None	Pipeline, TCC/ Temporary Construction Compound
WH-26	HBC	Ashville Way	Construction	End of Highway	Pipeline, Trenchless Crossing

3.2.3. On the West Corridor there are 26 accesses proposed. Of these accesses:

- 20 are full construction accesses onto the easement for HGV and LV construction traffic from the LRN;
- five are LV only construction accesses onto the easement from the LRN; and
- One is low HGV construction access – This access is one in which a small number of HGVs are required but for the majority of the construction programme it will function as a LV access only.

3.2.4. Ten of the proposed accesses on the corridor are proposed in locations where no access from the highway exists currently. Eight of the accesses would use existing bellmouths from the highway, four are located at the end of the highway where a track changes from being adopted to private and four are in locations where field gate access is currently provided.

Table 11B 3.2 North Corridor Construction Accesses (51 accesses)

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
NH-01	CWACC	Marsh Lane	Low HGV Construction	Existing Field Gate Access	Pipeline
NH-02	CWACC	Marsh Lane	Low HGV Construction	None	Pipeline
NH-03	CWACC	Higher Lane	Construction	None	Pipeline
NH-04	CWACC	Higher Lane	Construction	Existing Field Gate Access	Pipeline, Temporary Construction Compound
NH-05	HBC	Newton Lane	Low HGV Construction	None	Pipeline
NH-06	HBC	Newton Lane	Low HGV Construction	None	Pipeline
NH-07	WBC	Summer Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
NH-09	WBC	Daresbury Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
NH-10	WBC	Daresbury Lane	Low HGV Construction	None	Pipeline

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
NH-15	WBC	Warrington Road	Low HGV Construction	None	Pipeline
NH-16	WBC	Warrington Road	Low HGV Construction	None	Pipeline, Trenchless Crossing
NH-17	WBC	Holly Hedge Lane	Low HGV Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
NH-18	WBC	Holly Hedge Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
NH-19	WBC	Runcorn Road	Construction	None	Pipeline, Trenchless Crossing
NH-20 / NH-20A	WBC	Runcorn Road	Construction	None	Pipeline, Trenchless Crossing
NH-29	WBC	Eastford Road	Construction	End of Highway	Pipeline, Temporary Construction Compound, Trenchless Crossing, HAGI Compound, Higher Walton HAGI
NH-31	WBC	Westford Road	Construction	End of Highway	Pipeline, Trenchless Crossing, HAGI Compound
NH-32	WBC	Knutsford Road	Construction	Existing Bellmouth	Pipeline, Temporary Construction Compound
NH-33	WBC	Thelwell Lane	Construction	End of Highway	Pipeline

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
NH-34	WBC	Forrest Way	Construction	End of Highway	Pipeline, Trenchless Crossing, Higher Walton HAGI, HAGI Compound, Temporary Construction Compound
NH-36	WBC	A562	Construction	Existing Access	Pipeline, Trenchless Crossing, Temporary Construction Compound
NH-37	WBC	A562	Construction	None	Pipeline, Trenchless Crossing
NH-41	WBC	A5080	Construction	None	Pipeline, Temporary Construction Compound , Trenchless Crossing
NH-42	WBC	A5080	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing, Temporary Construction Compound
NH-43	SHBC	A5080	Construction	None	Pipeline, Trenchless Crossing
NH-44	SHBC	Mill Lane	Construction	None	Pipeline
NH-45	SHBC	Mill Lane	Construction	None	Pipeline
NH-46	SHBC	Twyford Lane	Construction	Existing Field Gate Access	Pipeline

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
NH-47	SHBC	Twyford Lane	Construction	None	Pipeline, Trenchless Crossing
NH-48	SHBC	A57	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
NH-49	SHBC	A57	Construction	None	Pipeline, Trenchless Crossing
NH-50	SHBC	B5419	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing, Temporary Construction Compound
NH-51	SHBC	B5419	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing, Clockface HAGI, HAGI Compound
NH-52	SHBC	B5419	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
NH-53	SHBC	School Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
NH-54	SHBC	School Lane	Low HGV Construction	None	Pipeline
NH-55	SHBC	Chapel Lane	Construction	None	Pipeline, Temporary Construction Compound
NH-56	SHBC	Chapel Lane	Construction	None	Pipeline, Trenchless Crossing

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
NH-57	SHBC	A570	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
NH-58	SHBC	B5204	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
NH-59	SHBC	Sutton Heath Road	Construction	End of Highway	Pipeline, Temporary Construction Compound
NH-60	SHBC	Burtonhead Road	Construction in public highway	None	St Helens Streetworks
NH-61	SHBC	Spur Road to St Helens Stadium	Construction	End of Highway	Pipeline
NH-62	WBC	A5060 (Chester Road)	Construction	None	Pipeline into highway, Trenchless Crossing
NH-63	WBC	Warrington Road	Low HGV Construction	None	Pipeline
NH-64	WBC	Warrington Road	Low HGV Construction	None	Pipeline
NH-65	WBC	Moore Lane	Construction	Existing Access	Pipeline, Higher Walton HAGI, HAGI compound,
NH-66	WBC	Lapwing Lane	Construction	None	Pipeline, Trenchless Crossing
NH-67	WBC	Wash Lane	Construction	Existing Bellmouth	Temporary Construction Compound

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
NH-68	WBC	Park Lane	Construction	None	Pipeline Trenchless Crossing
NL-02	WBC	Mowcroft Lane	Low HGV Construction	None	Temporary Construction Compound

3.2.5. On the North Corridor there are 51 accesses proposed. Of these accesses:

- 35 are full construction accesses onto the easement for HGV and LV construction traffic from the LRN; and
- 16 are a low HGV construction accesses – this is an access in which a limited number of HGVs are required for the but for the majority of the construction programme it will function as a LV access only.

3.2.6. Thirty of the proposed accesses on the corridor are proposed in locations where no access from the highway exists currently. Eight of the accesses would use existing bellmouths from the highway, six are at the end of the highway where a track changes from being adopted to private and seven are in locations where field gate access is currently provided.

Table 11B 3.3 East Corridor Construction Accesses (53 accesses)

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
EH-01	CWACC	Marsh Lane	Construction	Existing Field Gate Access	Pipeline
EH-02	CWACC	Marsh Lane	Construction	None	Pipeline
EH-03	CWACC	A49	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
EH-04	CWACC	A49	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
EH-05	CWACC	Norman's Lane	Low HGV Construction	None	Pipeline

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
EH-06	CWACC	Norman's Lane	Low HGV Construction	None	Pipeline
EH-07	CWACC	Old Mill Lane	Low HGV Construction	None	Pipeline
EH-08	CWACC	Old Mill Lane	Low HGV Construction	None	Pipeline, Temporary Construction Compound
EH-09	CWACC	A559	Construction	None	Pipeline, Trenchless Crossing
EH-10	CWACC	A559	Construction	None	Pipeline, Trenchless Crossing
EH-11	CWACC	Knutsford Road	Low HGV Construction	None	Pipeline
EH-12	CWACC	Knutsford Road	Low HGV Construction	None	Pipeline
EH-13	CWACC	Barber's Lane	Low HGV Construction	None	Pipeline
EH-14	CWACC	Barber's Lane	Low HGV Construction	None	Pipeline
EH-15	CWACC	Pools Platt Lane	Low HGV Construction	None	Pipeline
EH-16	CWACC	Pools Platt Lane	Low HGV Construction	None	Pipeline
EH-17	CWACC	Arley Road	Construction	None	Pipeline
EH-18	CWACC	Arley Road	Construction	None	Pipeline
EH-19	CEC	Caldwell's Gate Lane	Low HGV Construction	None	Pipeline
EH-20	CEC	Caldwell's Gate Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
EH-21	CEC	Moss Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
EH-22	CEC	Moss Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
EH-23	CEC	Moss Lane	Low HGV Construction	None	Pipeline
EH-24	CEC	Moss Lane	Low HGV Construction	None	Pipeline
EH-25	CEC	A50	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing, Temporary Construction Compound
EH-26	CEC	A50	Construction	None	Pipeline, Trenchless Crossing, Temporary Construction Compound, Block Valve
EH-27	CEC	Mowpen Brow	Low HGV Construction	Existing Field Gate Access	Pipeline
EH-28	CEC	Mowpen Brow	Low HGV Construction	None	Pipeline
EH-29	CEC	B5159	Construction	None	Pipeline
EH-30	CEC	B5159	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
EH-31	CEC	Froghall Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
EH-32	CEC	Froghall Lane	Low HGV Construction	None	Pipeline
EH-33	CEC	Agden Lane	Low HGV Construction	None	Pipeline
EH-34	CEC	Agden Lane	Low HGV Construction	None	Pipeline
EH-35	CEC	A56	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
EH-36	CEC	Warrington Lane	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing, Temporary Construction Compound
EH-38	CEC and WBC	Spring Lane	Low HGV Construction	Existing Access	Pipeline, Trenchless Crossing
EH-39	CEC and WBC	Spring Lane	Low HGV Construction	None	Pipeline
EH-40	WBC	Spring Lane	Low HGV Construction	None	Pipeline
EH-41	WBC	Spring Lane	Low HGV Construction	None	Pipeline, Trenchless Crossing
EH-42	TC	Carrgreen Lane	Construction	Existing Field Gate Access	Temporary Construction Compound
EH-43	TC	Carrgreen Lane	Construction	None	Pipeline, Warburton HAGI, HAGI Compound, Trenchless Crossing
EH-44	TC	Carrgreen Lane	Construction	None	Warburton HAGI, HAGI Compound Pipeline,

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
					Trenchless Crossing
EH-45	TC	B5160	Construction	None	Warburton HAGI, HAGI Compound, Pipeline, Trenchless Crossing
EH-46	TC	B5160	Construction	None	Pipeline, Temporary Construction Compound
EH-47	TC	Sawpit Street	Low HGV Construction	None	Pipeline, Temporary Construction Compound
EH-48	TC	Sawpit Street	Low HGV Construction	None	Pipeline
EH-49	TC	Sinderland Lane	Construction	None	Pipeline
EH-50	TC	Sinderland Lane	Construction	None	Pipeline
EH-51*	TC	A6144	Construction	Existing Bellmouth	Pipeline
EH-52	TC	A6144	Construction	Existing Bellmouth	Pipeline,
EH-53	TC	A6144	Construction	None	Pipeline
EH-54	TC	A6144	Construction	None	HAGI

*- EH-51 is not to be taken forward as part of the project, however forecast traffic flows associated with it are still included within the Draft ES assessment as a worst-case scenario.

3.2.7. On the East Corridor there are 53 accesses proposed. Of these accesses:

- 25 are full construction accesses onto the easement for HGV and LV construction traffic from the LRN; and
- 28 are a low HGV construction accesses – this is an access in which a limited number of HGVs are required for the but for the majority of the construction programme it will function as a LV access only.

3.2.8. Forty-one of the proposed accesses on the corridor are proposed in locations where no access from the highway exists currently. Five of the accesses would use existing bellmouths from the highway and seven are in locations where field gate access is currently provided.

Table 11B 3.4 South Corridor Construction Accesses (28 accesses)

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
SH-01	CWACC	A533	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-02	CWACC	A533	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-03	CWACC	A49	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
SH-04	CWACC	A49	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing (Access to west Corridor)
SH-05	CWACC	Acton Lane	Construction	New	Pipeline, Trenchless Crossing
SH-06	CWACC	Acton Lane	Construction	New	Pipeline, Temporary Construction Compound
SH-07	CWACC	Station Road	Construction	Existing Field Gate Access	Pipeline
SH-08	CWACC	Station Road	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-09	CWACC	Hefferston Rise	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing
SH-10	CWACC	Millington Lane	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing, Temporary Construction Compound
SH-11	CWACC	Millington Lane	Construction	New	Pipeline, Trenchless Crossing
SH-12	CWACC	Millington Lane	Construction	New	Pipeline

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
SH-13	CWACC	Weaverham Road	Construction	New	Pipeline
SH-14	CWACC	Weaverham Road	Construction	New	Pipeline, Trenchless Crossing
SH-15	CWACC	A556	Construction	Existing Bellmouth	Pipeline, Trenchless Crossing, Temporary Construction Compound, Block Valve
SH-21	CWACC	Eaton Lane	Low HGV Construction*	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-22	CWACC	Whitegate Lane	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-23	CWACC	Whitegate Lane	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-29	CWACC	Jack Lane	Low HGV Construction	Existing Access	Pipeline, Trenchless Crossing
SH-30	CWACC	Jack Lane	Low HGV Construction	New	TCC/ Temporary Construction Compound
SH-31	CWACC	A533	Construction	New	Pipeline, Trenchless Crossing
SH-32	CWACC	A533	Construction	New	Pipeline, Trenchless Crossing
SH-33	CWACC	London Road	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-34	CWACC	London Road	Construction	Existing Field Gate Access	Pipeline, Trenchless Crossing
SH-35	CWACC	Whatcroft Hall Lane	Construction (Height Restricted)	End of Highway	Pipeline, Trenchless Crossing
SH-36	CWACC	Whatcroft Hall Lane	Construction (Height Restricted)	Existing Field Gate Access	Pipeline, Trenchless Crossing

ID	Local Authority Area	Road Accessed From	Type of Access	Existing Access	Accessing
SH-37	CWACC	A530	Construction	New	Pipeline, Trenchless Crossing, Temporary Construction Compound
SH-38	CWACC	A530	Construction	Existing Bellmouth	HSF HAGI, HAGI Compound, Pipeline, Trenchless Crossing

Note: *HGV movements will be restricted at SH-21 (for example only HGV movements for HDD only) with HGV movements transferred to SH-29 where practicable

3.2.9. On the South Corridor there are 28 accesses proposed. Of these accesses:

- 25 are full construction accesses onto the easement for HGV and LV construction traffic from the LRN (two of these are access routes which are height restricted); and
- three are low HGV construction accesses for crossings of the highway network – This is an access in which a limited number of HGVs are required for the installation and reinstatement of the crossing points.

3.2.10. Ten of the proposed accesses on the corridor are proposed in locations where no access from the highway exists currently. Six of the accesses would use existing bellmouths from the highway, one is at a location at the end of the adopted highway and eleven are in locations where field gate access is currently provided.

3.2.11. In developing the temporary construction access strategy, a balance has been struck between the need to access each construction location, and the objective of avoiding the over-provision of new accesses onto the highway network, and/or provide numerous accesses onto the same section of road. All proposed accesses for the Draft ES are within the Draft Order Limits.

3.3. Standard Access Design and Access Types

3.3.1. **Table 11B 3.1** to **Table 11B 3.4** above identify five different types of existing accesses, as discussed below. Consultation, including any site-specific detailed design, with the relevant highway authorities may occur on a location-by-location basis if required, prior to the commencement of construction in the area subject to the relevant access creation/improvement.

3.4. Existing Field Gate Access

3.4.1. Where access is proposed via an existing field gate a standard bellmouth design will be created in these locations where gateways are too narrow. Design

improvements to widen the access to accommodate construction vehicles and an appropriate visibility splay would be made if necessary.

3.5. Existing Bellmouth Access

- 3.5.1. Where access is proposed via an existing bellmouth design improvements to widen the access to accommodate construction vehicles and an appropriate visibility splay would be made if necessary.

3.6. New Accesses

- 3.6.1. New accesses are required where access is proposed but no current facility exists. Some new accesses are at the edges of agricultural fields and require the removal of hedgerow or other vegetation management. The majority of new accesses are required at crossing locations.

3.7. End of Highway

- 3.7.1. In addition to the access types set out above, access routes to several temporary construction compounds to be used for the Project require extensions to the end of the existing road network (for example, where the highway terminates and forms a private road/track). Significant works would not be required where access is taken from the end of the highway.

3.8. Temporary Construction Access

- 3.8.1. Temporary construction accesses will be designed to follow standard construction practice as set out in Design Manual for Road and Bridges (DMRB) and to meet relevant local highway authority requirements, details of which are provided in the following section. The final specific access arrangements for temporary construction accesses will be agreed with the six local highway authorities as stated above. Access is not proposed from the SRN and therefore there will not be a requirement to consult with National Highways (NH) on access design. At this stage, the following is assumed for the types of access:
- Where it is proposed to use existing tracks/private farm bellmouth accesses, which are already provided with suitable visibility splays, no changes to the existing access layouts would be made but the access would be supplemented with traffic management and signage.
 - Where it is proposed to use an existing field gate access or farm tracks where there is no existing visibility splay, a visibility splay would be provided by coppicing vegetation to below 1m, in accordance with Figure 3.3 of DMRB, CD123 Geometric Design of At Grade Priority and Signal Controlled Junctions, August 2020. At this stage, visibility splay requirements are based on the speed limit of the road as a worst case. This assumption would be reconsidered in light of any site-specific visibility requirements based on speed surveys, proposed to be undertaken to inform the DCO application and will be included within the related CTMP.

- Where it is proposed to use an existing field gate access or farm tracks where there is no existing visibility splays or where visibility splays are not appropriate (for example for ecological reasons such as the presence of woodlands) then these would be managed through traffic management measures.
- Where temporary construction access is taken from the end of a highway leading directly into a private farm track there would not be a need for a visibility splay.
- Where a new temporary construction access is proposed, a standard bellmouth access design would be used with implementation of a full visibility splay.

3.8.2. Post-construction it is likely that temporary construction accesses would be removed or reinstated to existing layouts/condition (unless these are required for access during the operation and maintenance of the Project). However, should the landowner wish to retain an improved access then this would be discussed with the relevant highways authority.

1.1.1 **Figures 2.2 to 2.4** set out the nature of the bellmouth designs anticipated on the Project, which will be discussed with the relevant local highways authorities post Section 42 consultation.

3.9. Draft ES Draft Order Limits and Visibility Standards

- 3.9.1. Each of the temporary construction accesses have been included in the Draft Order Limits. The Draft Order Limits include access tracks to the highway with an allowance for a temporary construction access as well as the required visibility splays. This is to ensure any clearance works required to achieve these splays can be undertaken. It is assumed that the coppicing of hedgerows, pushing hedgerows back or removal of hedgerows may be required, depending on site specific issues. Such activity will facilitate temporary construction access from the carriageway along with using traffic management as well as standard hedgerow maintenance.
- 3.9.2. There are only four access points that are onto main high-speed roads where it is considered the contractor may need to remove or coppice hedgerow in order to facilitate safe access, these are SH31, SH32, EH09, and EH10.
- 3.9.3. It is assumed that visibility splays would be based on the guidance and standards set out the DMRB.
- 3.9.4. Prior to submission of the DCO application, visibility splay requirements would be agreed with the relevant highways authorities on a case-by-case basis, considering: individual temporary construction/operational access sites, likely traffic demands and durations and site-specific speed surveys.
- 3.9.5. At access points where sufficient visibility splays to facilitate give-way operation cannot be achieved, the contractor would implement traffic management/control measures to facilitate the safe entry and exit of vehicles.
- 3.9.6. **Table 11B 3.5** sets out the stopping sight distances according to the speed of the road derived from DMRB standards. The “y” distance is the distance from the temporary construction and operational access to the kerb edge in either direction that can be seen.

Table 11B 3.5 **Visibility standards**

Design speed of road (KPH)	Signed speed limit of road (MPH)	Visibility “Y” distance (m)
50	20	70
60	30	90
70	40	120
85	50	160
100	60	215
120	70	295

- 3.9.7. These visibility splays have been adopted for all construction accesses other than the following:
- All end of highway accesses – not required as traffic flows directly from the highway onto a private track with no turn;
 - all LV Only accesses – only used by light vehicles and as such full visibility splays not required;
 - At access points where sufficient visibility splays to facilitate give-way operation cannot be achieved, the contractor would implement traffic management/control measures to facilitate the safe entry and exit of vehicles; and
 - Existing formal access points.
- 3.9.8. It should also be noted that when drafting the visibility splays that in locations where proposed accesses are adjacent to other road junctions on the highways network, the visibility has been cut short of DRMB “Y” distances. The splays stop at that junction.

3.10. Vehicle Classification

- 3.10.1. A number of vehicle types will be used for the construction of the Project. **Table 11B 3.6** provides a list of the types of vehicles required during construction of the elements of the Project, outlined by classification.

Table 11B 3.6 **Vehicle Classifications**

Light Vehicles (LV)	Heavy Goods Vehicles (HGVs)
Light Goods Vehicles (LGVs)	HGVs
Cars	OGVs

Minibus	Major Plant (Cranes tractors, excavators etc)
Long Wheelbase Vans/Welfare Van	Concrete Mixers
4x4s	Grab Wagons
All-Terrain Vehicles (ATVs)	Tipper Trucks
	Pipe Trailers
	Water/Slurry Tankers

3.10.2. The list of vehicle types provided in **Table 11B 3.6** is not exhaustive and has been based on projects of a similar type/scale/complexity. Construction machinery and onsite plant, vehicles and generator fuel tanks would be re-fuelled on site.

3.11. Abnormal Indivisible Loads

3.11.1. There are no requirements for the use of Abnormal Indivisible Loads (AILs) on the Project. However, should the contractor determine that the use of AILs is necessary for any element of the Project, the following process should be adopted:

1. Road access only to be considered if there is no water route available;
2. Confirm suitability of proposed road route for AILs. This would be done using swept path analysis to assess any need to remove street furniture and engagement with the affected Local Highway Authority;
3. If a road route is to be adopted police, highway and structures authorities must be notified via Electronic Service Delivery for Abnormal Loads (ESDAL);
4. Engage with the Local Highway Authority and police to determine any escort requirements for the AIL.

4. HGV Routing Strategy

4.1. Introduction

- 4.1.1. The Project requires construction HGVs to route through urban and rural locations, to access the numerous site areas, both of which present challenges in terms of traffic levels, road widths, pedestrian and cyclist numbers, etc. An HGV Routing Strategy has been developed to minimise the impact of HGVs during the construction of the Project. **Section 4** sets out how the HGV Routing Strategy has been developed.

4.2. Overview of HGV Routing Strategy

- 4.2.1. To aid development of the HGV Routing Strategy, two types of routes have been considered as follows:
- Strategic – the SRN routes which link with the transport Study Area for the Project comprise the M6, M56, M62, M60 and A556. These routes are managed and maintained by National Highways and the scope of these have been agreed; and
 - Local – the LRN roads that link to the construction and operational accesses are managed and maintained by the six local highways authorities.
- 4.2.2. Access to each of the temporary construction accesses would utilise strategic routes on the road network as far as practically possible before routing onto local roads.

4.3. Strategic Routes

- 4.3.1. The M6 is one of the most important roads in England running from Birmingham to the Scottish border and one of the busiest stretches of the road runs from Stoke to Preston through the Study Area of the Project. The M56 is a key east-west corridor linking North Wales (via the A55) and the major cities of the North West. The M62 is a key route on the SRN linking Liverpool and Manchester in the Study Area but also running over the Pennines to Leeds. The M60 is the orbital motorway that runs around Greater Manchester and the A556 is a vital key link between the M6 and M56, reducing pressure on the M6/M56 junction further north.
- 4.3.2. Within the side scope of the Study Area there are numerous junctions on the motorway network, which are proposed to be used as part of the access strategy as set out in the following section.

4.4. M56

Junction 14

- 4.4.1. Junction 14 will provide access from the SRN to the A5117 north and south of the Junction.

Junction 12

- 4.4.2. Junction 12 will provide access to the A557 (Western Point Expressway) north and south of the Junction.

Junction 11

- 4.4.3. Junction 11 will provide access to the A56 north of the Junction only.

Junction 10

- 4.4.4. Junction 10 will provide access to the A49 (Tarporley Road) and A559 south of the Junction and the A49 (Tarporley Road) north of the Junction.

Junction 9

- 4.4.5. Junction 9 is the Junction with the M6 (junction 20).

Junction 8/7

- 4.4.6. Junction 8/7 will provide access to the A56 north of the Junction.

Junction 1/3A

- 4.4.7. Junction 1 and 3A is the Junction with the M60.

4.5. M6

M6 Junction 19

- 4.5.1. Junction 19 provides a connection to the A556 north and south of the Junction.

Junction 20/20A

- 4.5.2. Junction 20/20A provides a connection to the A50 east of the junction and the B5356 west of the junction.

Junction 21A

- 4.5.3. Junction 21A is the Junction between the M6 and M62.

4.6. M62

Junction 7

- 4.6.1. Junction 7 provides access to the A557 and Warrington Road south of the Junction and the A557 (St Helens Linkway) north of the Junction.

Junction 12

- 4.6.2. This junction is the between the M62 and M60.

4.7. M60

Junction 8

- 4.7.1. This Junction provides access to the Carrington Spur south of the Junction.

Junction 7

- 4.7.2. This Junction provides access to the A56 south of the Junction.

4.8. SRN Network Entry/Exit Points

- 4.8.1. From the network of the SRN in the scope of assessment there are six strategic access routes into the Study Area:

- M60/M62 north-east strategic access route;
- M60 east strategic access route;
- M6 south strategic access route;
- M56 west strategic access route;
- M62 west strategic access route; and
- M6 north strategic access route.

- 4.8.2. The strategic access routes described are illustrated in **Figure 4.1**.

4.9. Local Routes

- 4.9.1. From the SRN there are a series of main routes on local roads that provide access to the Project construction site areas.

- 4.9.2. These local routes have been identified as suitable for construction HGVs through evaluation of the parameters listed below. The routes with the least constraints have been chosen for the HGV Routing Strategy, where possible:

- height restrictions;
- weight restrictions;

- road classification;
- road layout;
- existing pedestrian crossing facilities;
- existing traffic calming measures;
- sensitive receptors adjacent to the public highway;
- visibility constraints;
- speed limits and traffic speeds;
- areas prone to congestion;
- significant changes in gradient; and
- vulnerable road users (pedestrians, cyclists and equestrians).

4.9.3. Based on the parameters outlined above, relevant embedded environmental measures outlined in **Chapter 11: Traffic and Transport (Table 11.22)** have been incorporated into the design of the Project.

4.9.4. In terms of HGV access, and as set out in **Section 3**, there are two types of accesses on the Project, main construction accesses and crossings where only very small numbers of HGVs will be required in the establishment and reinstatement of crossing points. All of these accesses are considered in the HGV Access Strategy. **Figure 4.2** sets out the HGV Access Strategy presented in this Section. In **Figure 4.2** the main construction traffic routes to main construction accesses are presented as purple routes. The extensions to crossing points for limited numbers of HGVs are shown as orange routes.

4.9.5. The resultant HGV Routing Strategy, considering all the local constraints, access locations and embedded environmental measures, comprises 19 local HGV routes which are illustrated in **Figure 4.2** and set out in **Table 11B 4.1** to **Table 11B 4.4** (for the four corridors). The locations of the construction accesses are set out in **Section 3.2**. The tables only set out routes to the construction accesses for HGVs, both to general construction access and light construction access points, the table does not include routeing to LV only access points.

Table 11B 4.1 Local road routes to construction accesses – West Corridor

Route number	Key Road from SRN	Route via local road network	Construction access
1	M56 (Junction 14) – A5117	A5117 – Pool Lane	WH-01, WH-02
		A5117 – B5132	WH-03, WH-04
		A5117	WH-05
		A5117 – Ince Lane	WH-06
		A5117 – Ince Lane – Ash Road	WH-24

Route number	Key Road from SRN	Route via local road network	Construction access
2	M56 (Junction 12) - north	M56 – Weaver View	WH-10
3	M56 (Junction 12) - south	M56 – A557 – A56 (west)	WH-12
		M56 – Clifton Lane – Ashville Way	WH-26
		M56 – A557 – A56 (east)	WH-14, WH-15, WH-25
		M56 – A557 – A56 (east) – Aston Lane	WH-16, WH-17
		M56 – A557 – A56 (east) – A533 Aston Lane	WH-18, WH-19, WH-20
		M56 – A557 – A56 (east) – A533	WH-21, WH-22, WH-23,

Table 11B 4.2 Local road routes to construction accesses – North Corridor

Route number	Key Road from SRN	Route via local road network	Construction access
1	M56 (Junction 12) - south	M56 – A557 – A56 (east) – A533 – Higher Lane	NH-01, NH-02, NH-03, NH-04
2	M6 (Junction 20) - west	M6 – A56	NH-32,
		M6 – A56 – B5156	NH-67
		M6 – A56 – A50 – Thelwall Lane	NH-33
3	M56 (Junction 11) – A56 north	A56 - Newton Lane – Summer Lane – Newton Lane	NH-05, NH-06
		A56 - Newton Lane – Summer Lane	NH-07
		A56 – B5356	NH-09, NH-10
		A56 – Park Lane	NH-68

Route number	Key Road from SRN	Route via local road network	Construction access
		A56 – A558 – Blackheath Lane – Eastgate Road	NH-28
		A56 – Park Lane – Warrington Road	NH-15, NH-16, NH-63, NH-64
		A56 – Holly Hedge Lane	NH-18, NH-17
		A56 – Runcorn Road	NH-19, NH-20,
		A56 – Runcorn Road at Bellhouse Lane	NH-20A
		A56 – Runcorn Road – Moore Lane	NH-65
		A56 – Runcorn Road – Lapwing Lane	NH-66
		A56 – A5060 – Taylor Street – Westford Road	NH-31
		A56 – A5060 – Taylor Street – Eastford Road	NH-29
		A56 – A5060	NH-62
4	M62 (junction 7) – A557 south	A557 – A5080 – Mill Lane – Twyford Lane	NH-46, NH-47
		A557 – A5080 – Mill Lane	NH-44, NH-45
		A557 – A5080	NH-41, NH-42, NH-43
		A557 – A5080 – A562 (west)	NH-37
		A557 – A5080 – A562 (west) – Mowcroft Lane	NH-36, NL-02
5	M62 (junction 7) – A57 Warrington Road south	A57 Warrington Road	NH-48, NH-49
		A57 Warrington Road – B5419	NH-50, NH-51, NH-52

Route number	Key Road from SRN	Route via local road network	Construction access
		A57 Warrington Road – A562 – Liverpool Road – Barnard Street – Forrest Way	NH-34
6	M62 (Junction 7) A570 north	A570 – Chapel Lane	NH-55, NH-56
		A570 – Chapel Lane – School Lane	NH-53, NH-54
		A570	NH-57
		A570 – B5204	NH-58
		A570 – Sutton Heath Road	NH-59
		A570 – Access Road to St Helens Stadium	NH-61

Table 11B 4.3 Local road routes to construction accesses – East Corridor

Route number	Key Road from SRN	Route via local road network	Construction access
1	M56 (junction 10) – A49 south	A49 — Marsh Lane	EH-01, EH-02,
		A49	EH-03, EH-04
2	M56 (junction 10) – A559	A559	EH-09, EH-10
		A559 – Lake Lane – Old Mill Lane – Norman’s Lane	EH-05, EH-06, EH-07, EH-08
		A559 – Knutsford Road	EH-11, EH-12
3	M56 (junction 10) – A49 north	A49 – B5356 – Arley Road – Caldwell’s Gate Lane	EH-18, EH-17, EH-19, EH-20
		A49 – B5356 – Arley Road – Pools Platt Lane	EH-15, EH-16
		A49 – B5356 – Arley Road – Barbers Lane	EH-13, EH-14
4	M6 (junction	A50 – Swineyard Lane – Moss Lane	EH-21, EH-22, EH-23, EH-24

Route number	Key Road from SRN	Route via local road network	Construction access
5	20) – A50 east	A50 – B5159	EH-25, EH-26, EH-29, EH-30
		A50 – B5159 – Mowpen Brow	EH-26, EH-27
	M56 (junction 7/8) – A56 west	A56 – Agden Park Lane – Froghall Lane	EH-31, EH-32, EH-35,
		A56 – Agden Park Lane – Agden Lane	EH-33, EH-34
		A56 – Warrington Lane	EH-36, EH-37
		A56 – B5159 – Bradshaw Lane – Spring Lane -	EH-38, EH-39, EH-40, EH-41
6	M6 (Junction 7) - A56 south	A56 – Sinderland Road – Sinderland Lane	EH-49, EH-50
7	M6 (Junction 8) – A6144	A6144 – B5160 – Carrgreen Lane	EH-42, EH-43, EH-44, EH-45, EH-46
		A6144 – B5160 – Barns Lane – Sawpit Street	EH-47, EH-48
		A6144	EH-51, EH-52, EH-53, EH-54

Table 11B 4.4 Local road routes to construction accesses – South Corridor

Route number	Key Road from SRN	Route via local road network	Construction access
1	M56 (junction 10) – A49 south	A49 – A553 (west)	SH-01, SH-02
		A49 – Millington Lane – Weaverham Road	SH-13, SH-14, SH-11, SH-12, SH-10,
		A49 – Acton Lane	SH-06, SH-05
		A49 – Sandy Lane – Station Road	SH-08, SH-07
		A49 – Hefferston Rise	SH-09

Route number	Key Road from SRN	Route via local road network	Construction access
		A49 – A556 [routeing to SH15 only]	SH15
		A49 (south) – A556 – A559 – Whitegate Lane [routeing to SH22 and SH23 only]	SH-23, SH-22
2	M56 (junction 12) – A5557 south	M56 – A557 – A56 (east) – A533 – A49 (south) – A556 [routeing to SH15 only]	SH15
		M56 – A557 – A56 (east) – A533 – A49 (south) – A556 – A559 – Whitegate Lane [routeing to SH22 and SH23 only]	SH-23, SH-22
3	M6 (junction 19) – A556 west	A556 [routeing from SH15 only]	SH15
		A556 – A559 – Whitegate Lane [routeing from SH22 and SH23 only]	SH-23, SH-22
		A556 – Hartford Road – Eaton Lane	SH-21
		A556 – A533	SH-31, SH-32
		A556 – A533 – Jack Lane	SH-29, SH-30
		A556 – A533 – London Road	SH-33, SH-34
		A556 – A530	SH-37, SH-38
		A556 – A530 – Whatcroft Hall Lane (height restricted)	SH-36, SH-35

4.9.6. In addition to the accesses, a route for HGV access is also required for the sections of pipeline in the carriageway from the SRN, which is proposed as follows:

- Section 1 – Access to pipeline in carriageway from two directions:
 - ▶ M56 – Junction 11 – A56 north – Gainsborough Road;
 - ▶ M6 Junction 20 – A56 west – A50 – A5061 (Knutsford Road) – Loushers Lane;
- Section 2 – M6 Junction 20 – A56 west – A50 – Thelwall Lane;

- Section 3 – M62 Junction 7 – A570 (St Helens Linkway) – Eurolink – Chapel Lane;
- Section 4 - M62 Junction 7 – A570 (St Helens Linkway) – B5204 – Sherdley Road; and
- Section 5 - M62 Junction 7 – A570 (St Helens Linkway) – Burtonhead Road.

4.9.7. The HGV routes to these sections of in carriageway pipeline are also included in **Figure 4.2**.

4.10. HGV Local Road Routes Issues/Constraints

4.10.1. The local road routes encompass the HGV routes to be used between the Project and the SRN. A number of common issues and constraints have been identified that are consistent across these routes and details of the mitigation proposed are set out in **Table 11B 4.5**.

Table 11B 4.5 Issues and constraints management of HGV local road routes

No.	Issue/constraint	Mitigation
1	Sensitive, built-up areas (villages, towns) to be avoided by temporary construction traffic due to impacts on congestion, highway safety and air and noise pollution.	The HGV Routing Strategy and the temporary construction access locations and onsite haul roads have ensured that several settlements would be avoided, where possible by construction HGV traffic. These settlements include Frodsham, Helsby, Elton, Hartford, Middlewich, Wincham, Lostock Gralam, Pickmere, Comberbach, Arley, Antrobus, Lymm, Heatley, Rainhill and Sutton Manor. This measure would limit the impacts of the Project in local villages and settlements. Additionally, the measures will minimise, where possible, impacts to the settlements of: Davenham, Bostock Green, Stretton and Great Sankey.
2	Avoidance, if possible, of built-up areas to minimise conflict with parking areas, local roads and streetscapes.	The HGV Routing Strategy and the temporary construction access locations and onsite haul roads have ensured that several settlements would be avoided by construction HGV traffic. These settlements include the built-up urban centres of Widnes, Runcorn, Sale, Altrincham, Nantwich, Weaverham. For settlements that the project has construction activities within, HGV routeing has been arranged to minimise impact. These settlements include Warrington and St Helens.
3	Avoidance of narrow rural roads.	The HGV Routeing Strategy approach has been to avoid the use of small single-track roads as much as possible. The only elements of single-track roads (less than 4m width) required for major construction HGV access are as follows:

No.	Issue/constraint	Mitigation
		• 396m of Marsh Lane; • 400m of Lapwing Lane • 287m of Carrgreen Lane; and • 1,010m of Whatcroft Hall Lane More single-track elements of the local highways network are needed for the limited HGVs, on the orange routes in Figure 4.2, but these will be used infrequently and only in the installation and reinstatement stages of the Project.
4	Limited visibility at temporary construction access junctions.	Selected temporary construction accesses will have appropriate visibility splays. Access points where sufficient visibility splays to facilitate give-way operations cannot be achieved will require the contractor to implement Traffic Management/Control Measures to facilitate safe entry and exit of vehicles. Four access points that are onto main high-speed roads have been identified where it is considered the contractor may need to remove or coppice hedgerow in order to facilitate safe access: SH31, SH32, EH09 and EH10.
5	Impacts on pedestrians (PRoW), cyclists (National Cycle Network, Sustrans and local routes) and equestrians (local routes).	A Draft Outline Public Rights of Way Management Plan (PRoWMP) has been prepared and is provided as Appendix 11C in support of Chapter 11: Traffic and Transport .
6	Construction traffic impacts on capacity of junctions and links on the construction routes (SRN and LRN).	The assessment of construction traffic generation from the Project on 54 highways links has been set out in Chapter 11: Traffic and Transport . The environmental measures required to mitigate the impact of construction traffic are also provided.
7	Additional routing considerations in Trafford: • B5356 weight limit • Covershaw Lane weight limit	The HGV routeing strategy takes into account the B5356 and Covershaw Lane weight limits with project construction traffic routes along alternative routes. These alternative routes also reduce the number of construction vehicle trips in the vicinity of the New Carrington employment area. Additional mitigation measures can be implemented for Carrgreen Lane as set out in Appendix 11A.

No.	Issue/constraint	Mitigation
	• Potential overlap with New Carrington allocation • Carrgreen Lane unsuitability for HGV traffic	

5. Light Vehicle Routing Strategy

5.1. Introduction

- 5.1.1. The Project would generate two types of construction LV traffic as follows:
- LV construction staff traffic; and
 - LV construction traffic including vans and smaller delivery vehicles.
- 5.1.2. **Section 5** sets out how the LV Routing Strategy has been developed.
- 5.1.3. It should be noted that for the purpose of the Draft ES, traffic generation has been assessed with all traffic (HGV and LV) routing from the SRN direct to work sites. As the Project evolves, traffic calculations may be revised to understand the detailed interaction between construction compounds and individual site accesses.

5.2. LV Construction Staff Traffic

- 5.2.1. This element of the LV construction traffic generation would comprise staff travelling to and from their home/overnight accommodation to one of the Temporary Construction Compounds (TCC) to commence work for the day, this activity would be required across the entire construction phase.
- 5.2.2. The trips would take place in private cars/work vans/minibuses. When construction of the Project commences, staff would gather in teams at the TCCs and then, following sufficient work briefings and collection of materials/plant, would travel to the relevant area of construction works related to the project corridor in teams using minibuses, work vans or other site/work related vehicles. Some staff may arrive directly at sites during some stages of the programme such as for the line survey and in circumstances where staff would go directly to the HAGI sites staying all day before travelling home or to overnight accommodation.

5.3. LV Construction Traffic

- 5.3.1. This element of the LV construction traffic generation would comprise construction staff leaving a variety of construction compounds in teams and travelling to a proposed individual work site for their workday and then returning to the TCC at the end of the day.
- 5.3.2. These trips would take place in Light Goods Vehicles (LGV) predominantly, however they may also be undertaken in 4X4 vehicles and private cars (for management staff). Where required, these works vehicles would pick up materials and plant. These trips are not included in the assessment as they will be consolidated trips (e.g. staff travelling in minibuses) and ad-hoc in nature.

5.4. Overview of LV Routing Strategy

5.5. LV Construction Staff Traffic

- 5.5.1. To aid development of the LV Routing Strategy, a preliminary estimation of the construction traffic generated by the Project has been undertaken. The construction traffic generation estimation has been applied to the construction traffic programme for the construction schedule. This has resulted in construction vehicle movement predictions per vehicle type on a weekly basis per access point, split into HGVs and LVs.
- 5.5.2. The detailed methodology and construction traffic calculations undertaken to inform this output are presented in **Chapter 11: Traffic and Transport**, which sets out the detailed construction traffic generation methodology, assumptions, materials required and other matters that have informed the construction traffic generation output.
- 5.5.3. As set out above, at this stage the movement of LVs between TCCs and individual sites for construction has not been defined within the traffic calculations. These trips will be consolidated trips (e.g. staff travelling in minibuses) and ad-hoc in nature. However, consideration of the routes these movements would need to follow when they have been defined has been provided for the purpose of this preliminary LV access strategy. The LV Routing Strategy provides details on two types of LV construction traffic:
- LV construction staff traffic – This has been calculated from journey to work data from the 2011 Census¹ for five local areas associated with the four corridors of the Project. **Figure 5.1** sets out the locations of the five locations used to inform construction staff distribution; and
 - LV construction traffic – Understanding the most appropriate routes of LV construction traffic between the temporary construction compounds and proposed works site temporary construction accesses along the Project corridor set out in **Table 11B 3.1**. This was undertaken using journey planning software and considering any local constraints.

¹ Note –While some UK 2021 Census data has been published, travel to work data by mode based on place of residence the census was recorded during the Covid-19 pandemic which involved travel restrictions and rapid behaviour changes to participation of working from home and furloughed employees. The impact of the Covid-19 pandemic on travel to work data would be an underestimation of journeys to work. Though the 2011 census data is over ten years old it has been used for LV distribution purposes as a more reliable and robust baseline for distribution of travel to work trips.

5.6. Construction Staff Traffic Distribution

5.6.1. For construction staff traffic movements into and out of the temporary construction accesses per day, a detailed distribution matrix has been produced.. This is based on journey to work data from the 2011 Census for five local areas. These areas are as follows;

- Rural Cheshire comprising:
 - ▶ All of the South Corridor;
 - ▶ East Corridor from the Central Hub HAGI and Dunham Massey;
 - ▶ North Corridor from Central Hub HAGI to Manchester Ship Canal; and
 - ▶ West Corridor from Central Hub HAGI to Preston Brook.
- Coastal Industrial – comprising:
 - ▶ West Corridor from Stanlow to Preston Brook; and
 - ▶ Runcorn/Rocksavage Spur.
- Manchester Fringe – comprising:
 - ▶ East Corridor Dunham Massey to the Partington HAGI.
- Warrington – comprising:
 - ▶ North Corridor, north of Manchester Ship Canal and Bold Heath; and
 - ▶ Carriageway pipeline section in Warrington.
- St Helens – comprising:
 - ▶ North corridor from Bold Heath and section of corridor into St Helens north of M62.

5.6.2. The areas used for the assessment of the journey to work data for the five areas are as follows:

- Rural Cheshire – Industrial Areas around Winnington (Super Output Area – Cheshire West and Chester 018)
- Coastal Industrial – Industrial Areas around the Stanlow Refinery (Super Output Area – Cheshire West and Chester 011)
- Manchester Fringe – Industrial Areas around Partington (Super Output Area – Trafford 017);
- Warrington – Industrial Areas around Factory Lane (Super Output Area – Warrington 018); and
- St Helens – Industrial Areas in Sutton Heath (Super Output Area – St. Helens 019).

- 5.6.3. The five areas have been selected to allow for an appropriate distribution of LV traffic across the Draft Order Limits. The distribution of traffic in the urban fringe of Manchester area would be different to that from work sites in rural Cheshire or north of the M56 near Ellesmere Port. This is a function of the wide scope of assessment for the Project
- 5.6.4. The resultant LV construction staff traffic distribution and assignment onto the road network within the Study Area that has been applied is set out in **Table 11B 5.1** for the five areas of the Project. **Figure 5.2** sets out the geographical scope of the exit points from the highway network Study Area.

Table 11B 5.1 LV construction staff traffic distribution and assignment onto road network

Entry/exit points from highways network Study Area scope	Rural Cheshire	Coastal Industrial	Manchester Fringe	Warrington	St Helens
A49 North	-	-	0.06%	9.66%	-
A49 North (to Warrington)	0.57%	0.15%	-	-	-
A49 South	1.89%	-	0.28%	0.20%	-
A50 South	-	-	1.16%	-	-
A50 West	-	-	0.55%	-	0.15%
A5033 East	2.02%	0.23%	-	0.69%	0.05%
A5117 West	-	51.58%	-	-	-
A530 South	9.22%	0.18%	-	0.24%	-
A533 South	9.39%	-	-	-	-
A533 West	0.23%	0.03%	0.17%	0.27%	0.03%
B5081 East	0.88%	-	-	-	-
A538 South	0.04%	0.09%	1.05%	0.29%	-
A5018 West	7.24%	-	0.06%	0.08%	0.03%
A555 East	0.55%	0.43%	-	0.55%	0.10%
A556 Chester Road West	2.67%	-	0.11%	0.12%	-
A557 South	-	-	0.17%	-	3.08%

Entry/exit points from highways network Study Area scope	Rural Cheshire	Coastal Industrial	Manchester Fringe	Warrington	St Helens
A558 West	0.38%	-	0.17%	3.28%	-
A559 South	-	0.17%	-	0.46%	-
A56 South West	-	-	-	-	0.05%
Frodsham and Helsby	0.53%	0.88%	0.06%	1.02%	0.13%
A560 West	0.11%	-	0.06%	0.06%	-
A562 West	-	-	-	5.41%	0.00%
A57 East	0.19%	0.06%	3.03%	0.85%	-
A57 South	-	-	-	-	0.03%
A57 West	0.13%	0.05%	0.50%	1.93%	0.18%
A58 North	-	-	0.11%	1.31%	44.58%
Altrincham	0.74%	0.31%	8.43%	0.74%	0.23%
B5082 East	1.60%	-	0.22%	0.24%	-
B5132 South	-	16.92%	-	-	-
Hartford	3.77%	-	-	-	-
B5156 West	-	-	-	2.52%	-
B5167 East	0.11%	0.05%	-	0.00%	0.05%
B5204 East	-	-	-	-	12.96%
B5204 West	-	-	0.17%	0.97%	7.21%
A6114 South	-	-	2.15%	-	-
B5419 South	-	-	0.11%	-	0.56%
Birchwood Way South	-	0.11%	-	-	0.49%
Broomsfield Lane East	3.22%	-	-	-	-

Entry/exit points from highways network Study Area scope	Rural Cheshire	Coastal Industrial	Manchester Fringe	Warrington	St Helens
Chapel Lane East	-	-	0.06%	-	-
Clay Lane North	-	-	0.11%	3.39%	-
Flixton and Urmiston Area	0.08%	0.14%	6.94%	0.26%	0.08%
Greater Manchester	1.35%	1.07%	17.80%	2.97%	1.54%
Internal	5.47%	3.48%	7.82%	2.54%	6.49%
London Road South	3.66%	-	0.06%	0.12%	0.05%
Lymm	0.38%	0.09%	1.76%	1.25%	0.05%
M60 East	1.41%	0.55%	8.04%	1.07%	0.67%
M56 West	2.15%	9.81%	2.70%	5.00%	1.26%
M6 North	1.03%	1.20%	2.15%	0.77%	-
M6 South	-	1.01%	3.97%	3.06%	1.59%
M60 North	0.51%	0.51%	12.73%	3.03%	2.41%
M62 West	-	-	2.09%	6.21%	12.01%
Marshalls Cross Road North	-	-	-	0.15%	-
Norley Road East	-	-	-	0.28%	-
Northwich	31.02%	1.18%	0.66%	0.99%	0.18%
Primrose Lane East	-	2.15%	-	-	-
Sale and Wythenshawe	0.38%	0.29%	10.63%	0.82%	0.10%
Station Road West	0.99%	-	0.06%	-	-
Warrington	2.44%	1.23%	3.42%	33.71%	2.87%

Entry/exit points from highways network Study Area scope	Rural Cheshire	Coastal Industrial	Manchester Fringe	Warrington	St Helens
Warrington Road West	-	-	-	1.40%	0.74%
Weston Link East	3.39%	5.66%	0.11%	-	-
Woolston Grange Avenue North	-	-	0.28%	1.75%	-
Weston Point Expressway North	0.29%	0.38%	0.06%	-	-
Whitegate Lane South	-	-	-	0.33%	0.03%
TOTAL	100%	100%	100%	100%	100%

- 5.6.5. The staff construction traffic would not have a defined route to sites and TCC. Staff vehicles are proposed to be permitted to access sites at their own discretion based on: the day's work schedule (may be at multiple sites), local traffic conditions, weather and other work-based factors, as would be expected for any LV construction staff traffic routing to and from their place of work.

6. Crossing Schedule

6.1. Introduction

- 6.1.1. In addition to the HGV and LV construction traffic routing, this CTMP considers the impacts of all pipeline crossings of the LRN and SRN as well as proposals for rail and navigable watercourse crossings.
- 6.1.2. It should be noted that in addition to the impacts on the adopted public highway and rail networks, the Project would also impact upon the PRow network. This is covered in a separate PRowMP appended to **Chapter 11: Traffic and Transport**, which sets out the scale and nature of these impacts together with a draft management strategy.

6.2. Highways Crossing Schedule

- 6.2.1. Open cut and trenchless highways crossing locations have been identified within the Draft Order Limits.
- 6.2.2. **Table 11B 6.1** to **Table 11B 6.4** detail the roads affected by highways crossings, it should be noted that private roads are not listed in the below tables. The crossing locations are shown in **Figure 6.1**. **Table 11B 6.1** to **Table 11B 6.4** outline the crossing reference number, crossing method and the LHA area the crossing is located in. It should be noted that some roads will be crossed by the same highways crossing.

Table 11B 6.1 Highways crossings (West Corridor)

Figure 6.1 ID reference	Road Name	Crossing Management	Local Authority
W1	A5117	Trenchless Crossing	CWACC
W2	B5132	Open Cut Crossing	CWACC
W3	A5117	Trenchless Crossing	CWACC
W4	Ince Lane	Trenchless Crossing	CWACC
W5	Rake Lane	Open Cut Crossing	CWACC
W6	Straight Lane	Open Cut Crossing	CWACC
W7	Hare's Lane	Open Cut Crossing	CWACC
W8	Moorditch Lane	Open Cut Crossing	CWACC
W9	Weaver Lane	Open Cut Crossing	CWACC

Figure 6.1 ID reference	Road Name	Crossing Management	Local Authority
W10	M56	N/A as the M56 bridges over the ground the Project routes through.	National Highways
W11	M56	N/A as the M56 bridges over the ground the Project routes through.	National Highways
W12	Cholmondeley Road	Open Cut Crossing	HBC
W13	Weaver View	Open Cut Crossing	HBC
W14	A557	Trenchless Crossing	CWACC
W15	A56	Trenchless Crossing	CWACC
W16	Unnamed Road	Open Cut Crossing	CWACC
W17	Aston Lane	Open Cut Crossing	CWACC
W18	Aston Lane	Open Cut Crossing	CWACC
W19	Aston Grange	Open Cut Crossing	CWACC
W20	A533	Trenchless Crossing	CWACC
W21	A533	Trenchless Crossing	CWACC

Table 11B 6.2 Highways crossings (North Corridor)

Crossing Point	Road Name	Crossing Management	Local Authority
N1	Marsh Lane	Open Cut Crossing	CWACC
N2	Higher Lane	Open Cut Crossing	CWACC
N3	Newton Lane	Open Cut Crossing	HBC
N4	Summer Lane	Trenchless Crossing	WBC
N5	M56	Trenchless Crossing	National Highways
N6	B5356	Open Cut Crossing	WBC
N7	Warrington Road	Open Cut Crossing	WBC
N8	Warrington Road	Open Cut Crossing	WBC

Crossing Point	Road Name	Crossing Management	Local Authority
N12	Holly Hedge Lane	Open Cut Crossing	WBC
N13	Runcorn Road	Open Cut Crossing	WBC
N15	Eastford Road	Open Cut Crossing	WBC
N16	Eastford Road	Open Cut Crossing	WBC
N17	Eastford Road	Trenchless Crossing	WBC
N21	A562	Trenchless Crossing	WBC
N23	A5080	Trenchless	SHBC
N24	Mill Lane	Open Cut Crossing	SHBC
N25	Twyford Lane	Open Cut Crossing	SHBC
N26	A57	Trenchless Crossing	SHBC
N28	M62	Trenchless Crossing	National Highways
N29	School Lane	Open Cut Crossing	SHBC
N30	Chapel Lane	Open Cut Crossing	SHBC
N31	St Helens Linkway	Trenchless Crossing	SHBC
N32	St Helens Linkway	Open Cut Crossing	SHBC
N33	B5419 Jubits Lane	Open Cut Crossing	SHBC
N34	Unnamed Road	Trenchless Crossing	WBC
N35	A50	Open Cut Crossing	WBC
N36	A49	Open Cut Crossing	WBC
N37	A5060	Trenchless Crossing	WBC
N38	A56 Chester Road	Trenchless Crossing	CWACC

Table 11B 6.3 Highways crossings (East Corridor)

Crossing Point	Road Name	Crossing Management	Local Authority
E1	Marsh Lane	Open Cut Crossing	CWACC
E2	A49	Trenchless Crossing	CWACC

Crossing Point	Road Name	Crossing Management	Local Authority
E3	Norman's Lane	Open Cut Crossing	CWACC
E4	Old Mill Lane	Open Cut Crossing	CWACC
E5	Red Lane	Open Cut Crossing	CWACC
E6	Back Lane	Open Cut Crossing	CWACC
E7	A559	Trenchless Crossing	CWACC
E8	Knutsford Road	Open Cut Crossing	CWACC
E9	Barber's Lane	Open Cut Crossing	CWACC
E10	Pool Platt Lane	Open Cut Crossing	CWACC
E11	Arley Road	Open Cut Crossing	CWACC
E12	Caldwell's Gate Lane	Open Cut Crossing	CEC
E13	M6	Trenchless Crossing	CEC
E14	Moss Lane	Open Cut Crossing	CEC
E15	Moss Lane	Open Cut Crossing	CEC
E16	A50	Trenchless Crossing	CEC
E17	Mowpen Brow	Open Cut Crossing	CEC
E18	Beechtree Farm Close	Open Cut Crossing	CEC
E19	B5159	Open Cut Crossing	CEC
E20	M56	Trenchless Crossing	National Highways
E21	Froghall Lane	Open Cut Crossing	CEC
E22	Agden Lane	Open Cut Crossing	CEC
E23	A56	Trenchless Crossing	CEC
E24	Warrington Lane	Trenchless Crossing	CEC
E25	Spring Lane	Open Cut Crossing	CEC
E26	Spring Lane	Open Cut Crossing	WBC

Crossing Point	Road Name	Crossing Management	Local Authority
E27	A5160 Dunham Road	Open Cut Crossing	TC
E28	Sinderland Lane	Open Cut Crossing	TC
E29	A6144 Manchester Road	Trenchless Crossing	TC
E30	Common Lane	Open Cut Crossing	WBC
E31	Unnamed Road	Open Cut Crossing	TC
E32	Sawpit Street	Open Cut Crossing	TC

Table 11B 6.4 Highways crossings (South Corridor)

Crossing Point	Road Name	Crossing Management	Local Authority
S1	A533	Trenchless Crossing	CWACC
S2	Acton Lane	Open Cut Crossing	CWACC
S3	Station Road	Open Cut Crossing	CWACC
S4	A49	Trenchless Crossing	CWACC
S5	Millington Lane	Open Cut Crossing	CWACC
S6	Weaverham Road	Open Cut Crossing	CWACC
S8	Whitegate Lane	Open Cut Crossing	CWACC
S12	Jack Lane	Open Cut Crossing	CWACC
S13	Unnamed Road	Open Cut Crossing	CWACC
S14	Niddries Lane	Open Cut Crossing	CWACC
S15	London Road	Open Cut Crossing	CWACC
S16	A530	Trenchless Crossing	CWACC
S17	A556	Trenchless	CWACC
S18	Grange Lane	Open Cut Crossing	CWACC

6.3. Rail Network Crossing Schedule

- 6.3.1. All rail crossings required during the Project construction period are proposed to use trenchless crossings, which should allow for the continued use of the railway lines during these periods or are locations where the rail line bridges over the ground the Project routes through.
- 6.3.2. The route requires a crossing of the rail network at 14 locations. The 14 locations are shown in **Figure 6.2**.
- 6.3.3. Engagement with Network Rail has and will continue to take place to discuss the proposed crossings of the rail network. It is expected that there will be no additional management requirements of the rail network crossings during the construction of the Project.
- 6.3.4. **Table 11B 6.5** provides details on the rail crossings.

Table 11B 6.5 Management of rail crossings

Crossing Point	Corridor	Rail Line Between	Local Authority Area	Management
R1	West	Ellesmere Port and Frodsham	CWACC	Trenchless Crossing
R2	West	Frodsham and Runcorn/Warrington	CWACC	Trenchless Crossing
R3	West	Warrington/Runcorn and Winsford – West Coast Mainline	CWACC	Trenchless Crossing
R4	South	Warrington/Runcorn and Winsford – West Coast Mainline	CWACC	Trenchless Crossing
R5	South	Warrington/Runcorn and Winsford – West Coast Mainline	CWACC	Trenchless Crossing
R6	South	Northwich to Chester	CWACC	Trenchless Crossing
R7	South	Northwich to Middlewich	CWACC	Trenchless Crossing
R8	North	Warrington/Runcorn and Winsford – West Coast Mainline	WBC	Trenchless Crossing

Crossing Point	Corridor	Rail Line Between	Local Authority Area	Management
R9	North	Warrington/Runcorn and Winsford – West Coast Mainline	WBC	Trenchless Crossing
R10	North	Warrington/Runcorn and Winsford – West Coast Mainline	WBC	The rail line bridges over the ground the Project routes through.
R11	North	Warrington/Runcorn and Winsford – West Coast Mainline	WBC	The rail line bridges over the ground the Project routes through.
R12	North	Warrington to Widnes	WBC	Trenchless Crossing
R13	North	Warrington to Liverpool	WBC	Trenchless Crossing
R14	North	Manchester to Liverpool	SHBC	Trenchless Crossing

6.4. Navigable Watercourse Crossing Schedule

- 6.4.1. All navigable watercourse crossings required during the Project construction period will be trenchless, which should allow for the continued use of the navigable watercourse during these periods.
- 6.4.2. The route requires a crossing of navigable waterways at 11 locations. The 11 locations are shown in **Figure 6.3**.
- 6.4.3. Consultation and engagement with the Canals and River Trust has and will continue to take place to discuss the requirements of the Project up to and beyond DCO application submission.
- 6.4.4. **Table 11B 6.6** provides details on the crossings of navigable waterways.

Table 11B 6.6 Management of navigable waterways

Crossing Point	Corridor	Name Of Navigable Waterway	Local Authority Area	Management
NW1	West	Weaver Navigation – Canal and River Trust	CWACC	Trenchless Crossing
NW2	West	Weaver Navigation – Canal and River Trust	CWACC	Trenchless Crossing
NW3	West	Trent and Mersey Canal – Canal and River Trust	CWACC	Trenchless Crossing
NW4	South	Trent and Mersey Canal – Canal and River Trust	CWACC	Trenchless Crossing
NW5	South	River Weaver – Canal and River Trust	CWACC	Trenchless Crossing
NW6	South	River Weaver – Canal and River Trust	CWACC	Trenchless Crossing
NW7	South	Trent and Mersey Canal – Canal and River Trust	CWACC	Trenchless Crossing
NW8	North	Bridgewater Canal – Peel Group	WBC	Trenchless Crossing
NW9	North	Manchester Ship Canal – Environment Agency and Peel Holdings	WBC	Trenchless Crossing
NW10	North	River Mersey - Environment Agency	WBC	Trenchless Crossing
NW11	East	Bridgewater Canal – Peel Group	CEC	Trenchless Crossing

7. Potential Mitigation Strategies

- 7.1.1. This section of the Draft Outline CTMP explains the types of traffic management measures that may be required across the Project to allow for safe and convenient working practices and access to construction sites.
- 7.1.2. Cadent would implement a number of the mitigation measures, as set out below, but discussion with National Highways and the six local highways authorities will be undertaken to inform consideration of detailed traffic management and, if required, road closures and diversions.
- 7.1.3. The proposed traffic related mitigation measures, relating to the construction phase of the Project, are detailed in the following sections. These measures cover site specific issues as well as general traffic management and mitigation proposals.

7.2. Site Specific Mitigation

7.3. Potential road closures and diversions

- 7.3.1. In addition to construction traffic routeing along the LRN, the Project will physically interact with the LRN in two types of situations; where it is proposed to open cut across a highway, and where it is proposed to place the pipe longitudinally along a highway (for example parts of the Warrington Spur). In the former situation there may be an option to excavate one lane of the carriageway at a time and/or undertake the closure overnight (where the highway is a single lane). When placing the pipe along the highway, traffic management including contraflow can be adopted.
- 7.3.2. Whilst the Draft DCO will provide the Applicant with the powers to undertake such works in the highway they would only be undertaken, and the management procedures implemented, in consultation with the relevant highway authority.

7.4. Locations requiring traffic management

- 7.4.1. Temporary traffic management would be deployed throughout the construction programme at various locations either side of the highway crossings. Construction activities that may require temporary traffic management include but are not limited to:
 - proposed access locations;
 - locations where pipe is being laid in the highway;
 - accesses to proposed construction compounds (including material storage) and HAGI locations; and
 - roads being used for the delivery of materials to the work areas.

- 7.4.2. The type of temporary traffic management deployed would vary and could include temporary traffic signals, manned stop/go boards, road narrowing/widening and temporary speed restrictions.
- 7.4.3. All temporary traffic management implementation plans would need to be agreed by National Highways and the six local highway authorities and will be applied in accordance with guidance and procedures set out within Section 14 of the Road Traffic Regulation Act 1984 (as necessary).
- 7.4.4. Temporary traffic management arrangements would be included as part of the detailed design for each of the Temporary Construction Compounds, which would also be subject to approval by the relevant highway authority.

7.5. General Construction Traffic Management/Mitigation

7.6. Traffic Signage

- 7.6.1. Where traffic management measures are required, these will be agreed in advance with the relevant highway authorities. Any temporary road closures/diversions will be advertised in advance and alternative routes indicated through signage. Where required, temporary speed restrictions may be sought, either through the DCO or by way of Temporary Traffic Regulation Orders (TTRO).
- 7.6.2. Any works within the highway would be reinstated to a standard commensurate prior to the commencement of the works and agreed with National Highways and the six highways authorities where appropriate.
- 7.6.3. Any works within non-adopted highways or private carriageways would be reinstated to a standard acceptable to the relevant authority or owner.

7.7. Access Route and Point Signing

- 7.7.1. Temporary signage would be erected along construction traffic routes on the LRN to provide directional routing information for construction vehicles, to ease navigation between the SRN and the construction sites and compounds. HGVs used for construction will be obligated to use the construction routes which are included within this Draft Outline CTMP.
- 7.7.2. Temporary signage warning other road users of the likely presence of construction vehicles would also be provided in the vicinity of each construction access location.
- 7.7.3. Where necessary warning signs at “short cuts” and “rat runs” would be erected to remind construction LV drivers to utilise the prescribed construction traffic routes.

7.8. Access Road Signage

- 7.8.1. In addition to the above, temporary signage would be erected along the proposed onsite construction access roads where necessary. The signage would provide construction vehicle drivers with information on the distances to construction sites (destinations) and warning (hazard) information related to potential vehicle conflict

or pedestrian conflict areas. Further information on the strategy for signage of pedestrian crossing areas is contained within the **Draft Outline PRowMP (Appendix 11C)**.

7.9. Other Signage

7.9.1. All signage would be provided in accordance with Traffic Signs Regulations and General Directions (TSRGD) published by the DfT. Signage to be erected includes:

- Traffic warning signs for road closures;
- traffic warning signs with contact details of the relevant contractors so the public can request information/updates; and
- advanced warning signs of road closures.

7.10. Core Working Hours

7.10.1. Standard construction working hours would be ten hours per day (08:00 to 18:00) from Monday to Saturday, with no works on Sundays or Bank Holidays. There may be the need for some extended working hours for certain activities but this would be subject to agreement with the local planning authority.

7.10.2. Construction work would take place in accordance with set “construction hours” which will be secured in the DCO within a Construction Environmental Management Plan (CEMP).

7.10.3. Works may be required outside core hours to complete trenchless crossings to ensure safe working practices. In the case of emergency, any work required to be undertaken outside of the core working hours (not including repairs or maintenance) would be agreed with the highway authorities prior to undertaking the works.

7.10.4. Details on exceptional circumstances are set out below in paragraph 7.15.1.

7.11. HGV and LV Construction Vehicle Records

7.11.1. All HGV and LV construction vehicle movement associated with the Project would be recorded and timed as vehicles enter and leave all TCCs and sites as part of a delivery management system (DMS). DMS records would be compiled and stored centrally so that any complaints received concerning driver/vehicle conduct can be first referenced against the DMS to confirm whether the vehicle in question is associated with the Project. Poor conduct/management by the contractor will be addressed by the Applicant.

7.12. HGV Emissions

7.12.1. All road-based vehicles used in the construction of the Project would be to a EURO standard V class or better.

7.13. Bankspersons or Presence of Qualified Personnel at the Access

- 7.13.1. Qualified personnel (banksperson) would be placed at key locations when necessary, during the construction of the Project. Key locations are likely to include construction accesses at key parts of the Project/highways network and at the PRow crossing points during busy periods. Further information on how this process would be managed is contained within the PRowMP. Qualified personnel can, also, be provided at other sensitive locations where conflict with the construction vehicles may arise.

7.14. Timing of HGV Movements

- 7.14.1. HGV movements associated with the Project would normally take place during the core working hours as set out in **Section 2** of this Preliminary CTMP and for the hour before and after these core working hours due to the distances involved in reaching some of the remote construction sites.
- 7.14.2. A booking system (included in the DMS) would be used to ensure deliveries to the sites are spread across the working day (where feasible). This would minimise the impact of HGV traffic during the peak periods. The booking schedule would also form part of and inform the monitoring processes of the CTMP.

1.1.2 As part of the mitigation for impacts related to the Project it is proposed to implement some HGV restrictions:

- B5204, Sutton Heath - It is proposed that there would be a Project HGV ban on the B5204 between 08:00 – 09:00 and 15:00 – 16:00 every school day;
- Arley Road, Appleton Thorn - It is proposed that there would be a Project HGV ban on the Arley Road between 08:00 – 09:00 and 15:00 – 16:00 every school day; and
- A6114, Partington - It is proposed that there would be a Project HGV ban on the A6114 between 08:00 – 09:00 and 15:00 – 16:00 every school day. The limits of these restrictions have not yet been defined and will be agreed following consultation.

7.15. Exceptional Circumstances

- 7.15.1. There may be exceptional circumstances when traffic routes on the SRN or the LRN are compromised, which would impact on construction vehicles not being able to use these routes. Exceptional circumstances are defined as one or more of the following:
- where continuous 24 hour periods of construction work are required, such as concrete pouring or directional drilling, and local highways authorities have been notified prior to such works 72 hours in advance;

- instances where it would be preferable to undertake highway improvement works outside of the key working hours (or overnight) where the traffic flows are minimal;
- as otherwise agreed in writing with relevant highway authorities;
- where a traffic accident, conflicting unplanned roadworks, or other similar incident on the road network disrupts the normal operation of the highway network or results in a road closure;
- where a breakdown of a LV/HGV enroute to a construction site or compound occurs and then arrives later due to time critical reasons;
- where work is requested to be completed out of hours by highway authorities;
- where there is a need for emergency health and safety requirements (incident); and
- where there is a need to implement urgent mitigation activities such as emergency flood prevention works.

7.15.2. In the event of an exceptional circumstance, the following impacts need to be considered with regards to highways and construction safety of the Project:

- Incidents on the road network could result in stoppage (at previously agreed locations) or rescheduling of deliveries;
- incidents on the road network causing delays, resulting in construction vehicles travelling outside of approved movement hours; and
- impacts of deliveries not being made, which could have impacts on health and safety due to a lack of equipment or materials or require a stop to construction works leading to delays to construction programme.

7.16. Cleaning of Vehicles

7.16.1. Vehicles exiting from an access bellmouth would be checked and wheels cleaned, if necessary, prior to using the public highway to prevent debris from being transferred off the site onto the road. If required, a road sweeper would be utilised to further ensure that the LRN remains safe and clear of debris. Details of the methodologies for the cleansing of vehicles will be included in the Outline CEMP to be included as part of the DCO submission and secured via DCO requirement.

7.17. Highway Condition Surveys

7.17.1. Highway condition surveys of access points would be undertaken before first use, at intervals during the construction programme and following final use, to ensure that the surface of the highway remains in good repair and highway safety is maintained. The condition survey inspections would also enable any repairs to be made in a timely manner throughout the construction period.

- 7.17.2. At the end of the construction period, the accesses and crossing points shall be inspected and a programme of works to restore them to the condition they were in before the construction period began would be agreed with the relevant local and strategic highway authority.

7.18. Delivery Management Systems

- 7.18.1. The contractor will be required to have a Delivery Management System (DMS) to be agreed with Cadent. The objectives of the DMS will be to:
- Control the delivery of materials and equipment in line with the construction programme;
 - minimise the number of construction vehicles on the road network (which will be scheduled to meet/adhere to any agreed restrictions); and
 - ensure construction vehicles do not exceed any agreed restrictions i.e. peak period travelling through certain towns/villages/junctions.

7.19. Information Packs and Communication

- 7.19.1. Information packs will be provided to all contractors which will form part of the contractual agreement between the contractors and applicant. The information pack may contain the details of the following CTMP requirements:
- HGV restrictions;
 - construction routes;
 - non-compliance guidance;
 - complaints procedure;
 - CTMP protocols and indications required for all contractors including a code of good practice;
 - guidance on standard communication procedures between contractors and site; and
 - CTMP contacts (emergency and non-emergency).
- 7.19.2. Information packs and communications details will be shared with relevant highway authorities ahead of any construction works.

8. Management of CTMP and Enforcements

8.1. Introduction

- 8.1.1. The CTMP will be approved by the relevant local planning authorities in consultation with all relevant highway authorities via a requirement of the DCO. It is important that a strong management structure is in place to ensure the CTMP objectives are met, and that it is continually monitored and reviewed.
- 8.1.2. A Transport Coordination Officer (TCO) will be appointed by the contractors to implement the CTMP. As several contractors will be appointed to undertake the varying construction works, it is unknown whether one TCO will be required for the entire Project, or each contractor will appoint an individual TCO. This will be agreed as part of the CTMP process and it is likely that a single TCO will be expected to co-ordinate and oversee all TCOs should there be a need for multiple TCOs.
- 8.1.3. The TCO will be employed prior to commencement of the works and will have the following transport related responsibilities:
- monitor contractor obligations under the CTMP;
 - liaise with and report to the local highway authorities and National Highways on mitigation and remedial measures as required;
 - update the CTMP as required; and
 - resolve issues and problems through the liaison with relevant stakeholders.

8.2. Monitoring and Review

8.3. Monitoring Strategy

- 8.3.1. The TCOs appointed by the contractors will undertake monitoring as necessary to ensure compliance with the requirements of the CTMP and this will include the maintenance of records of the traffic management measures that have been implemented.

8.4. Review

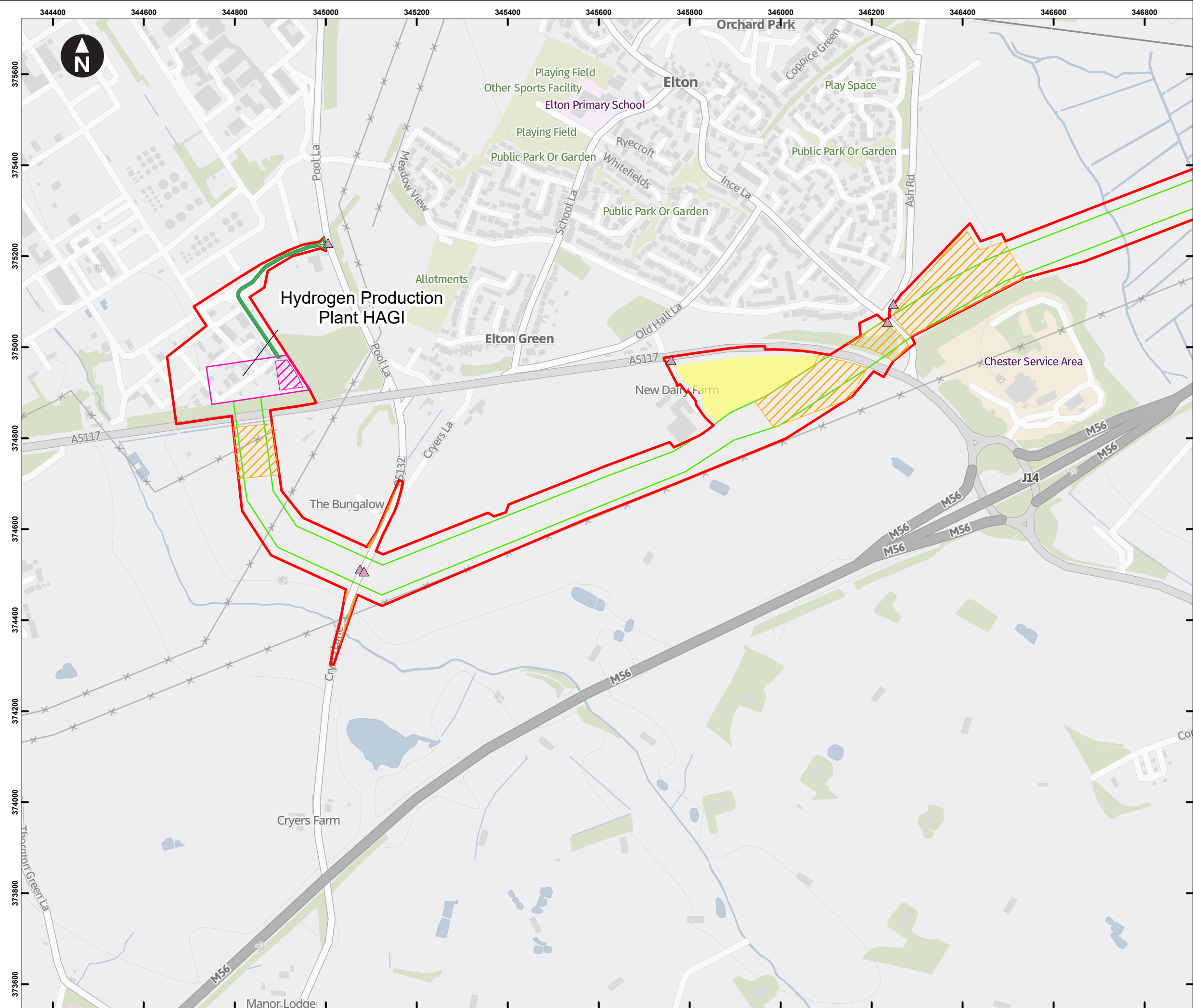
- 8.4.1. The TCO will monitor and review the CTMP. These reviews are required to ensure that the CTMP delivers on the commitments and achieves the agreed goals as set out in this document.

8.5. Compliance

- 8.5.1. As part of the CTMP, a series of mechanisms will be established to provide all parties with a clear understanding of the enforcement procedures that will be applied if the requirements contained within this CTMP are not achieved. It is anticipated that these mechanisms will be determined prior to construction and will include:
- Risk Assessment Method Statement (RAMS) procedures – The Contractor, through the TCO, will implement the CTMP, adhere to the requirements and meet the goals through management practices. This will include site inductions for contractors, briefing on the obligations of the Cadent standards, induction and adherence to RAMS procedures, DMS briefing, driver inductions and compliance guidance.
 - Contractual conditions – to be employed as part of the CTMP compliance methodology and will be built into the Contractors' contract, this will be subject to a performance review by Cadent.
 - Actions – To be employed if the commitments of the CTMP are breached.

8.6. Enforcement and Corrective Measures

- 8.6.1. The Applicant will ensure that appropriate measures are taken to ensure contractor behaviour and performance is monitored and where appropriate corrective measures are taken to resolve, redress and enhance service performance, which is in breach of the standard within the CTMP.
- 8.6.2. The Applicant will require that the appointed contractor's disciplinary procedures incorporate the Project commitments, including this Draft Outline CTMP, and these items are reflected in the contract between The Applicant and the relevant contractor. The Applicant has the power to remove person(s) should it be required and deemed appropriate.



Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Hydrogen Above Ground Installation Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Light Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



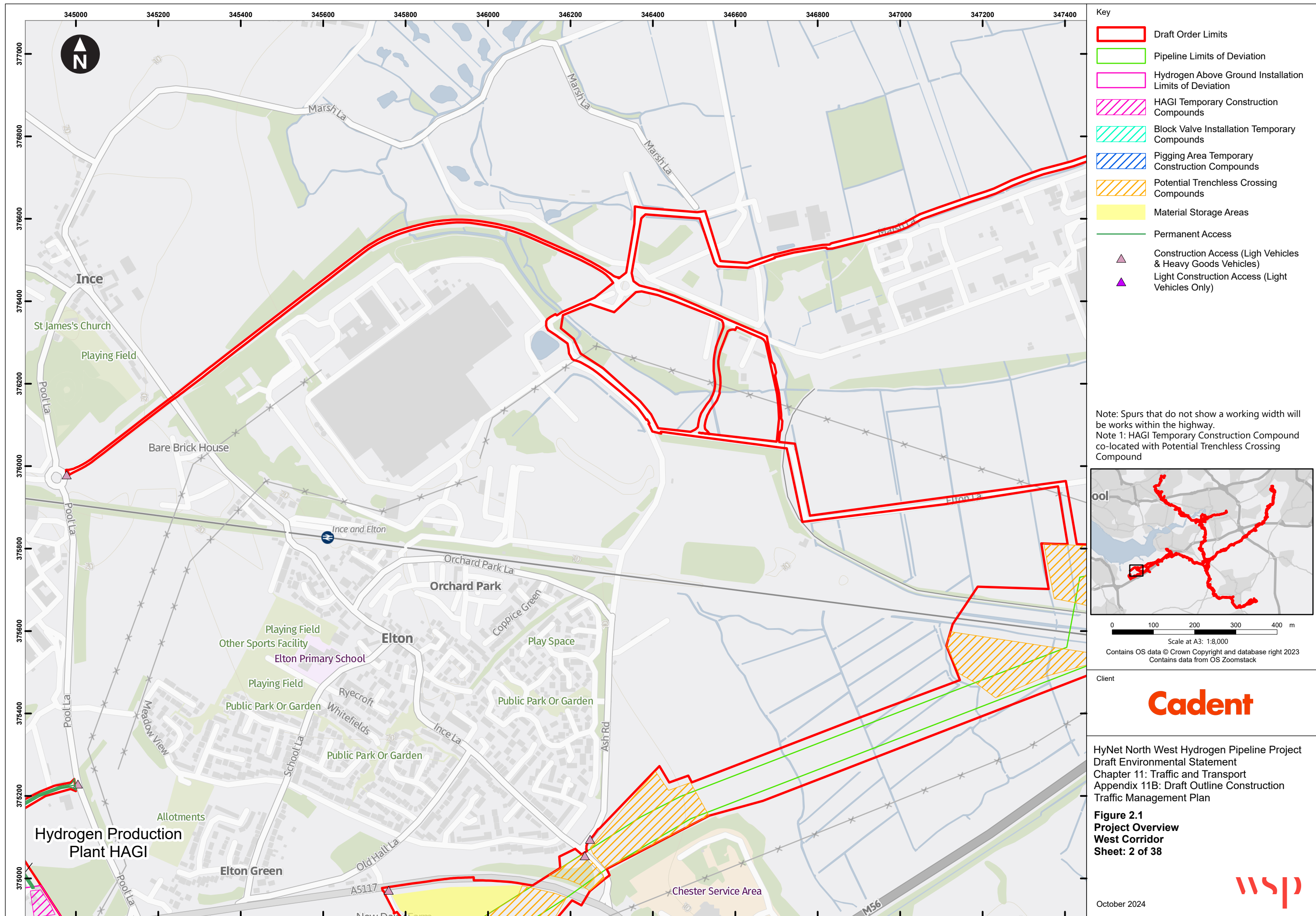
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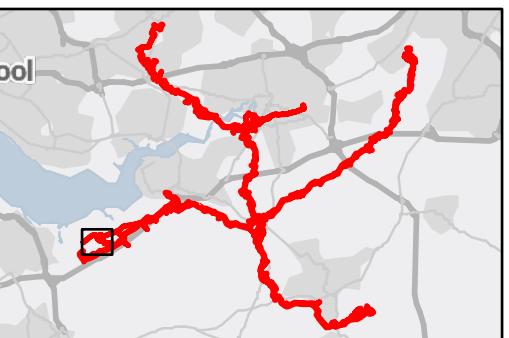
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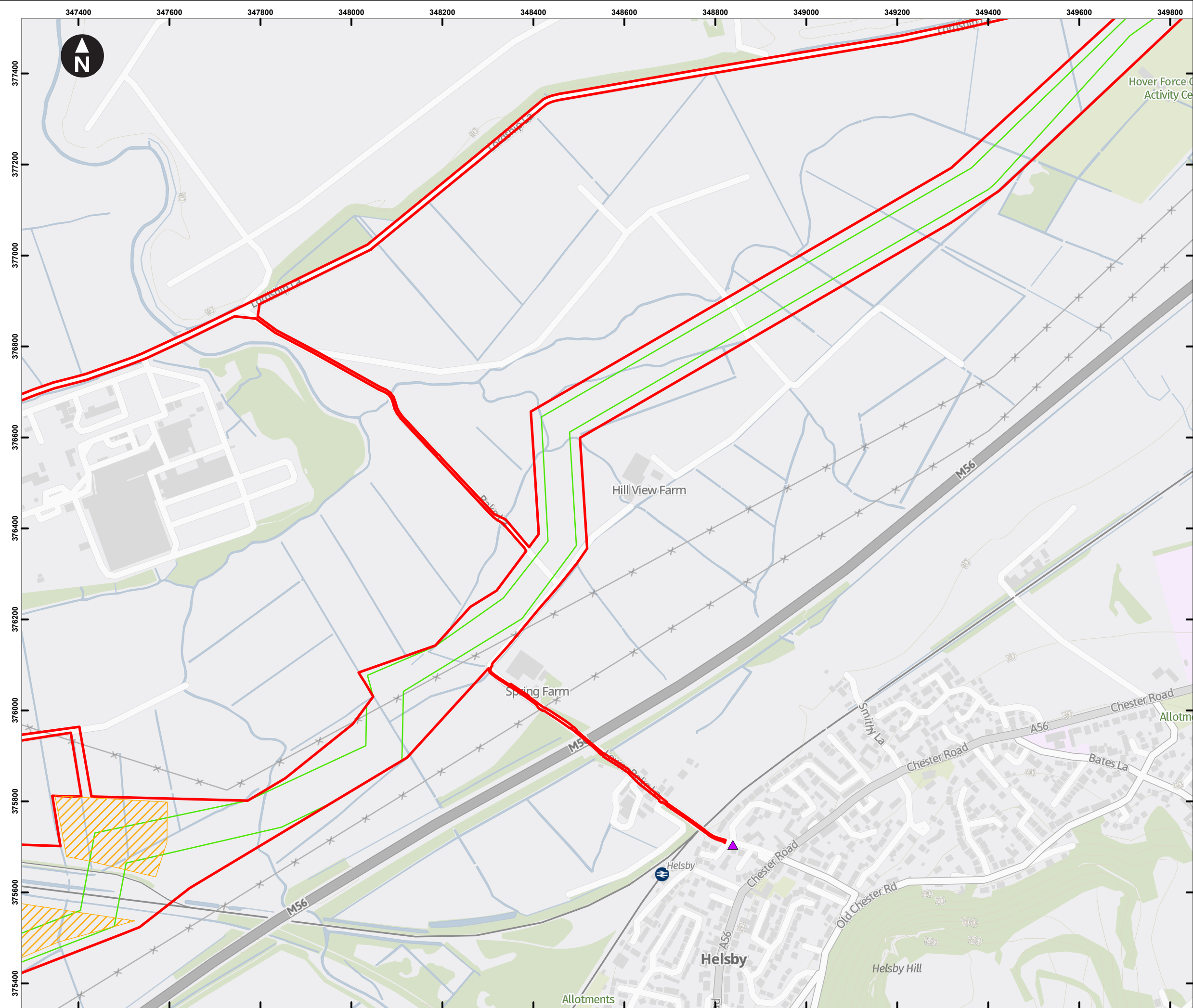
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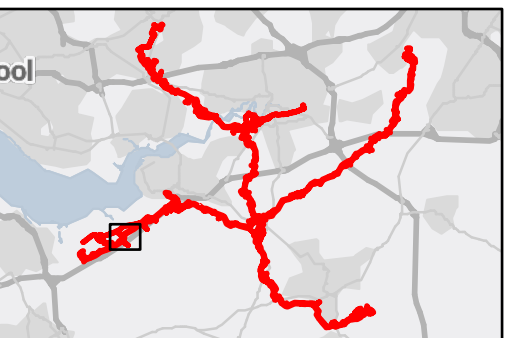
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Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



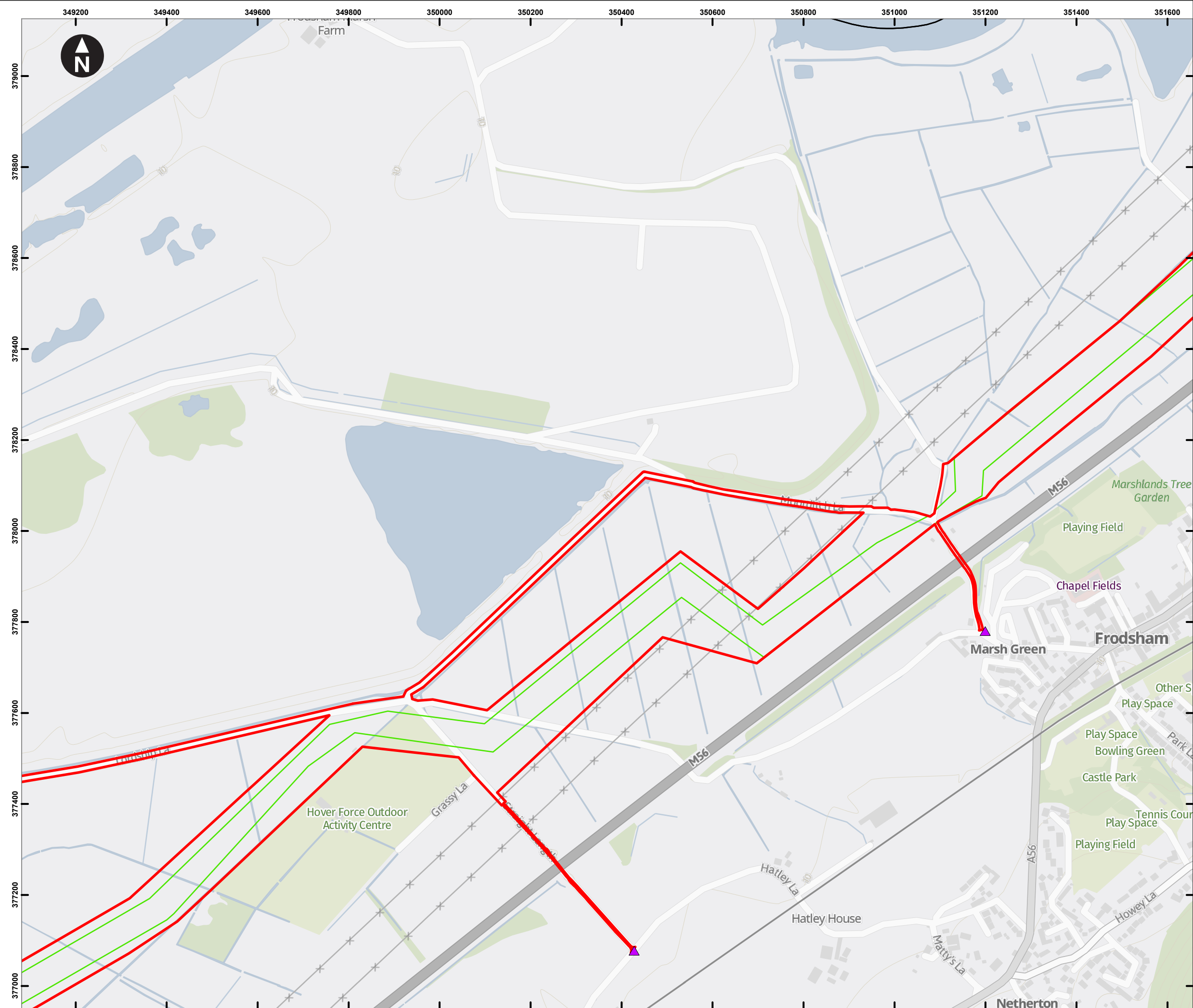
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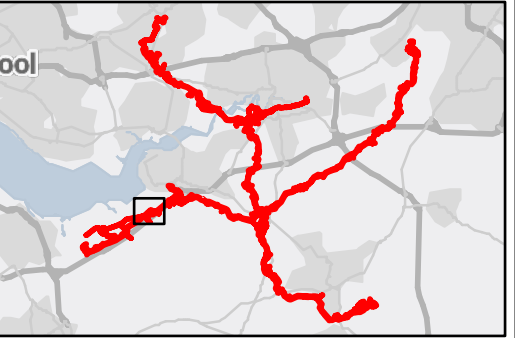
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Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



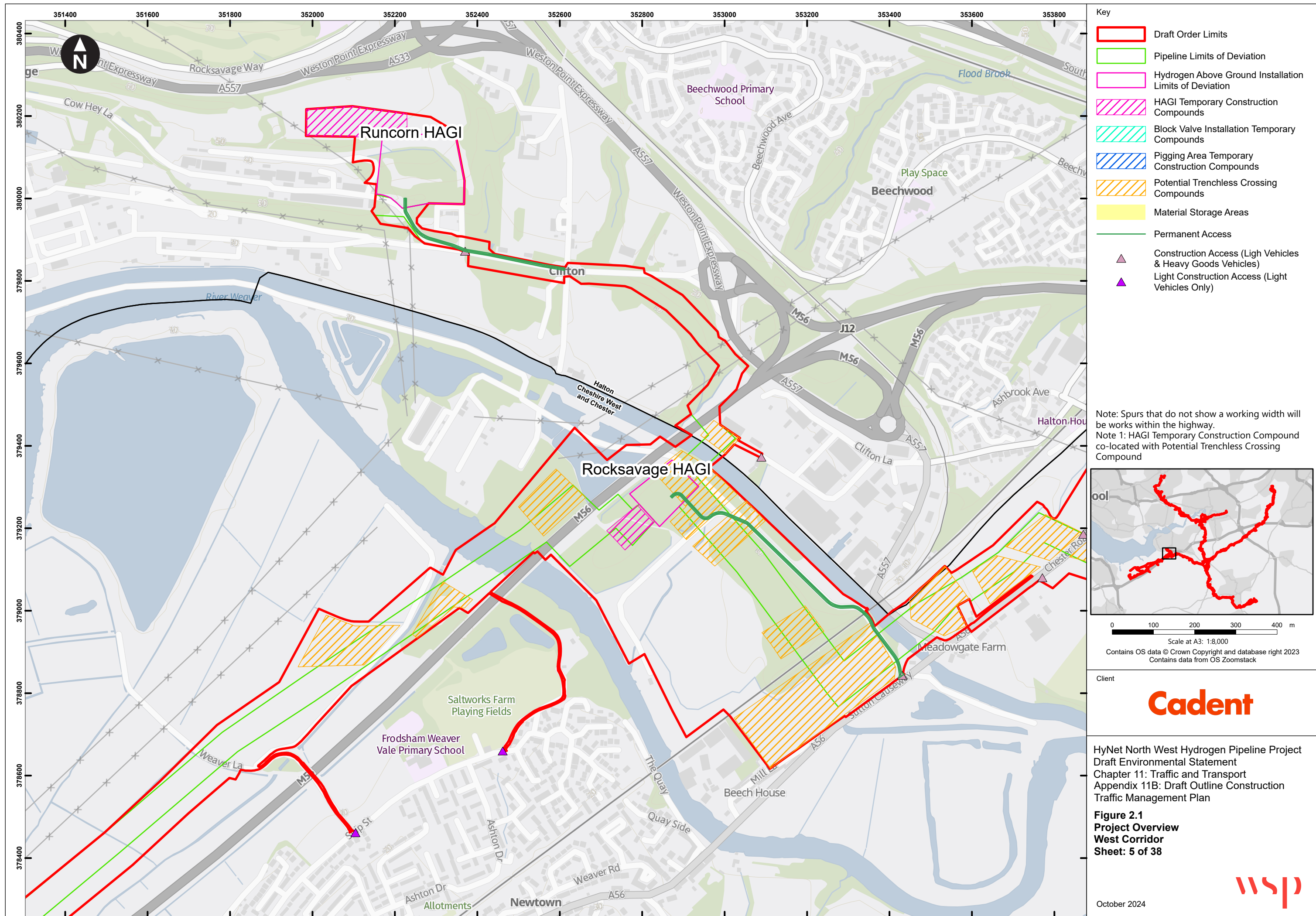
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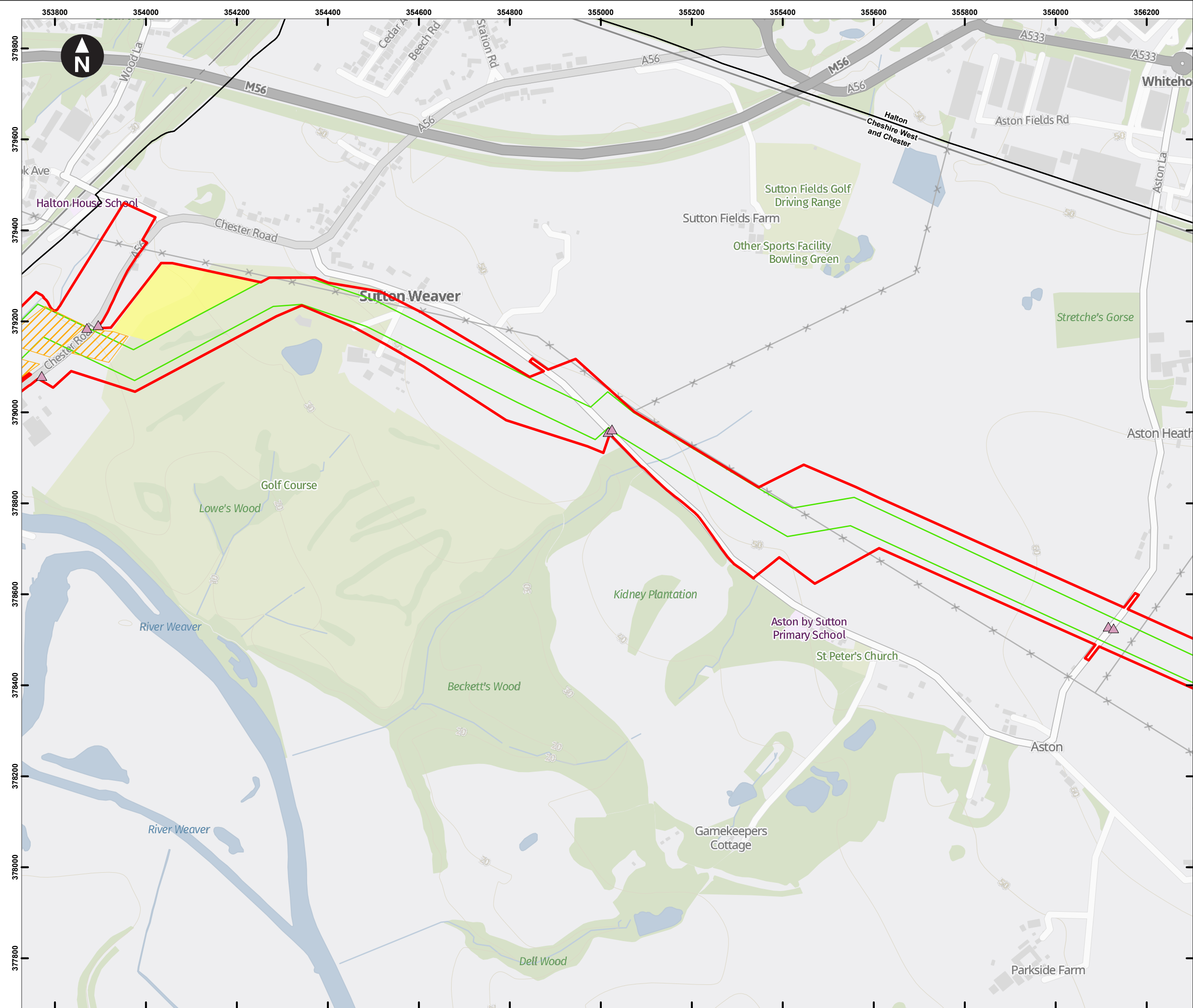
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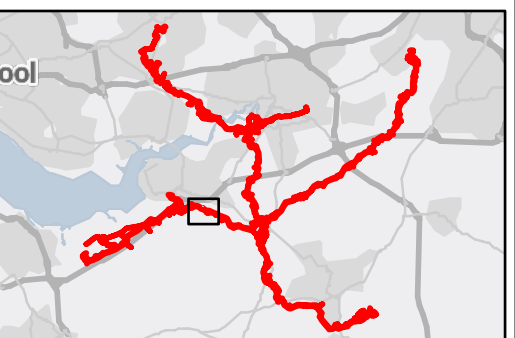
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Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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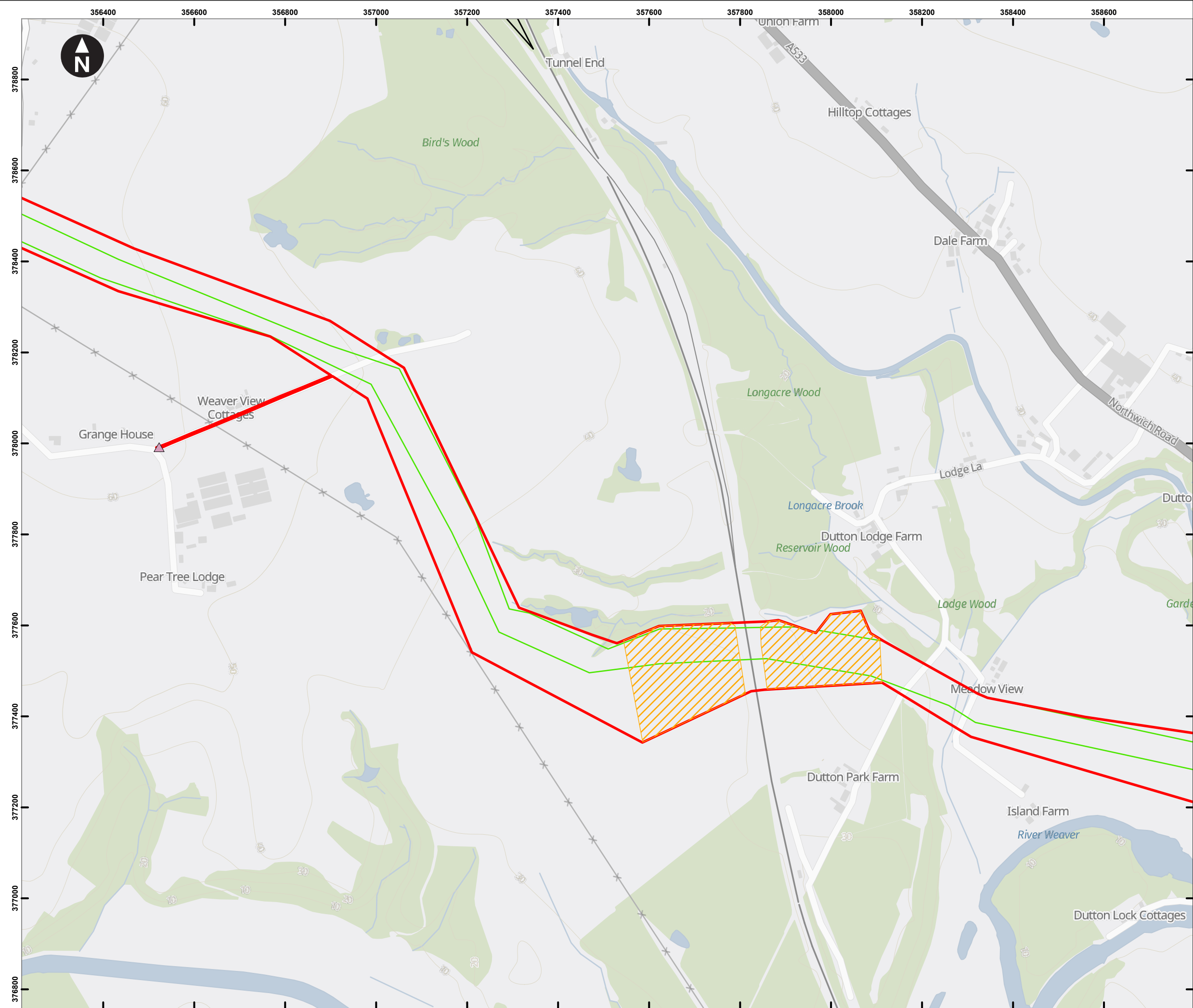
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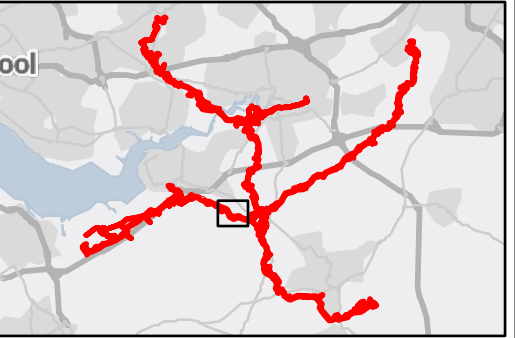
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
 - Material Storage Areas
 - Permanent Access
 - Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
 - Light Construction Access (Light Vehicles Only)

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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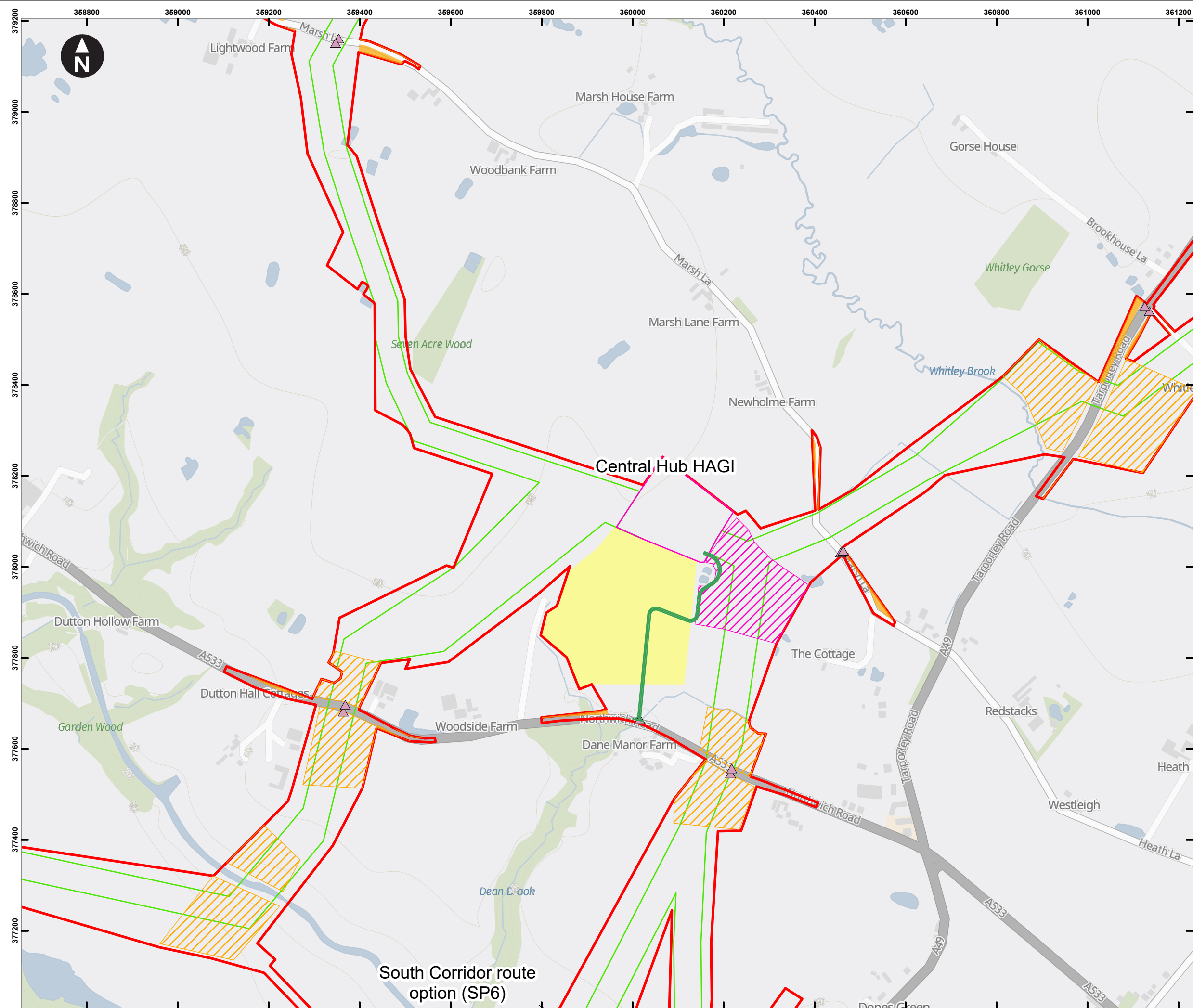
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction
Traffic Management Plan

Figure 2.1
Project Overview
West Corridor
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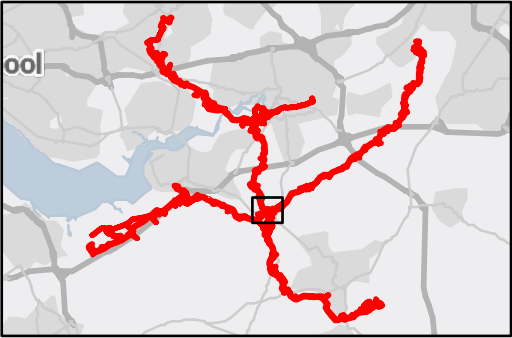
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Hydrogen Above Ground Installation Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Light Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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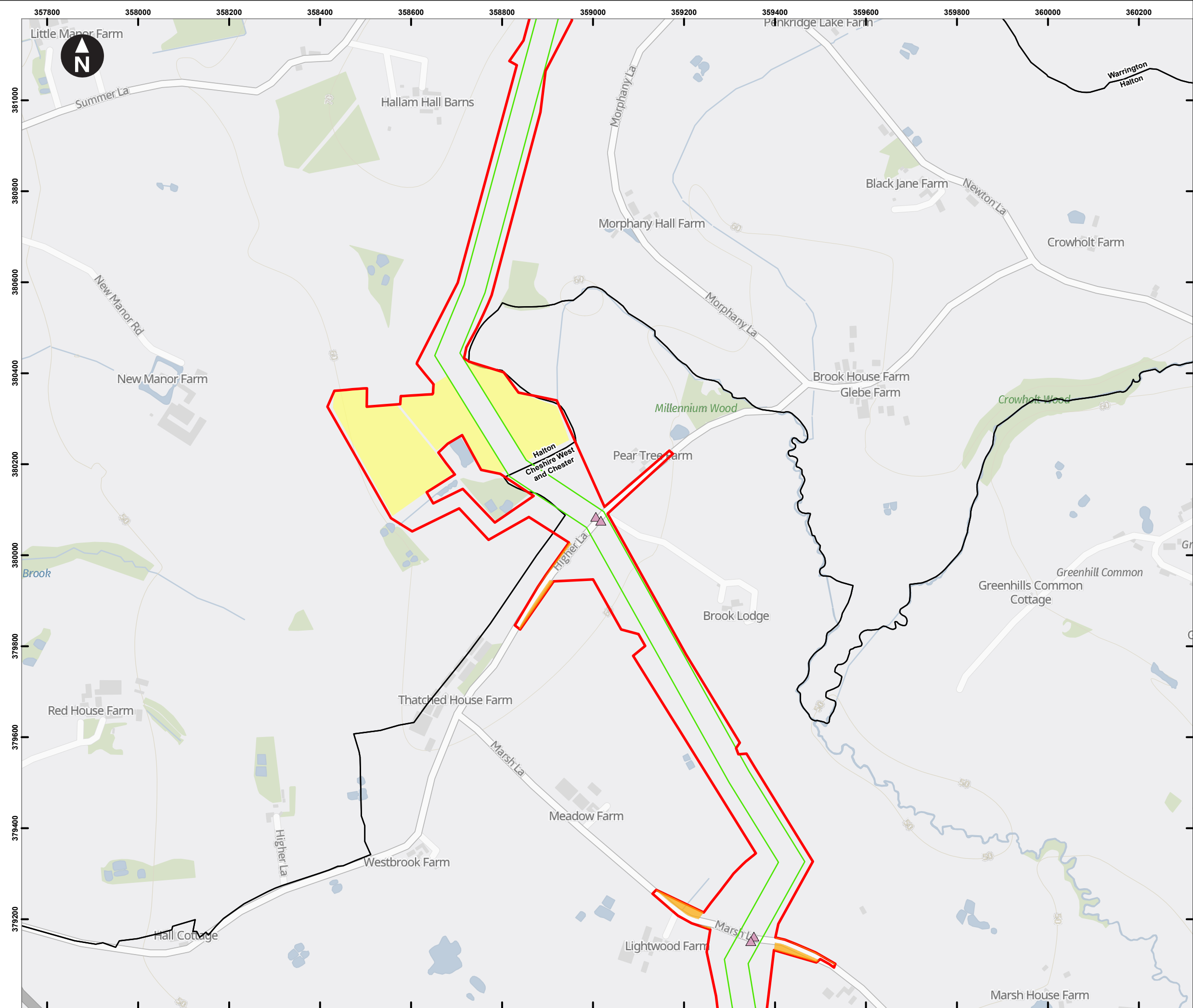
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
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wsp



- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
 - Material Storage Areas
 - Permanent Access
 - Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
 - Light Construction Access (Light Vehicles Only)
 - Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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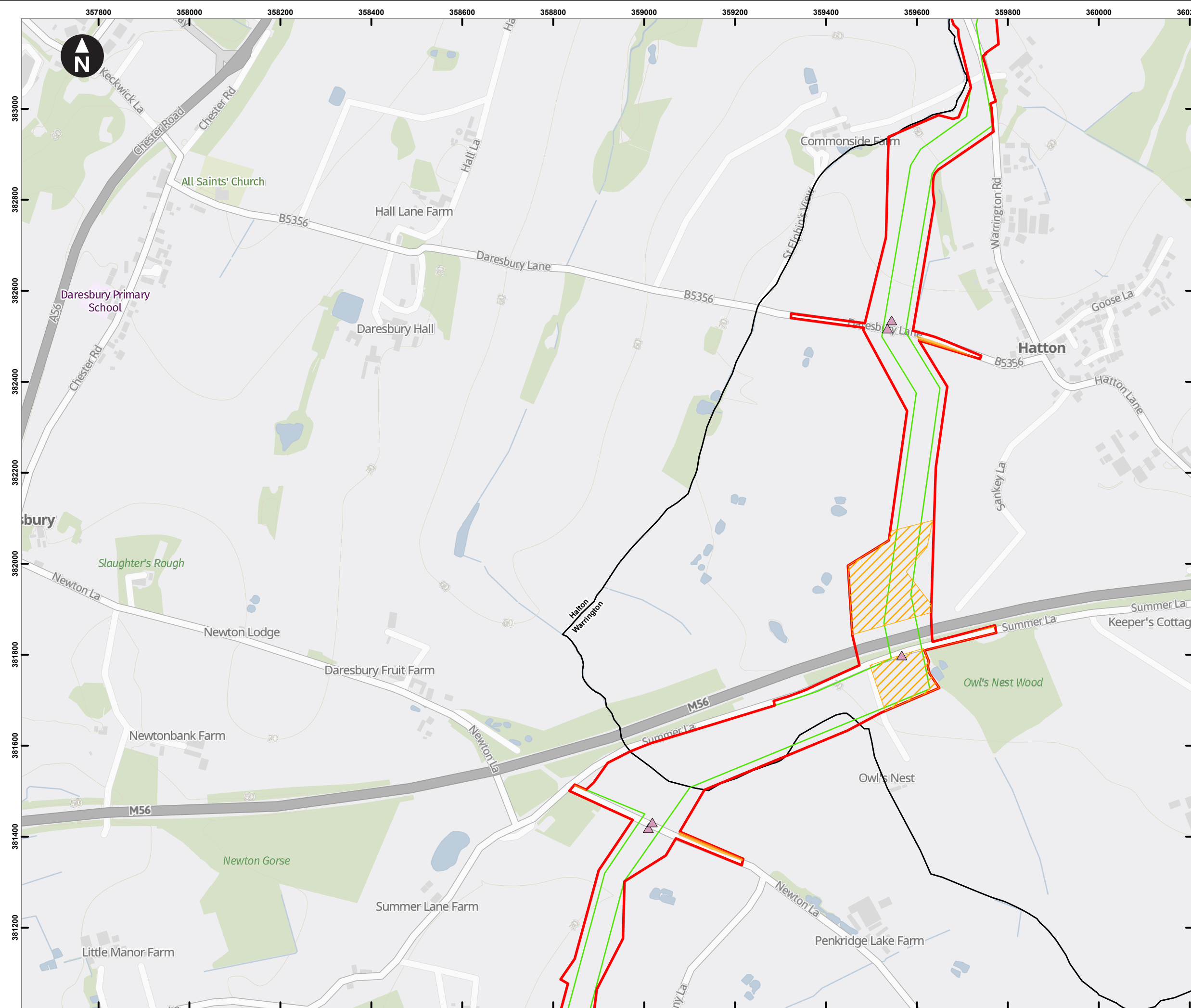
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
Project Overview
North Corridor
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Light Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



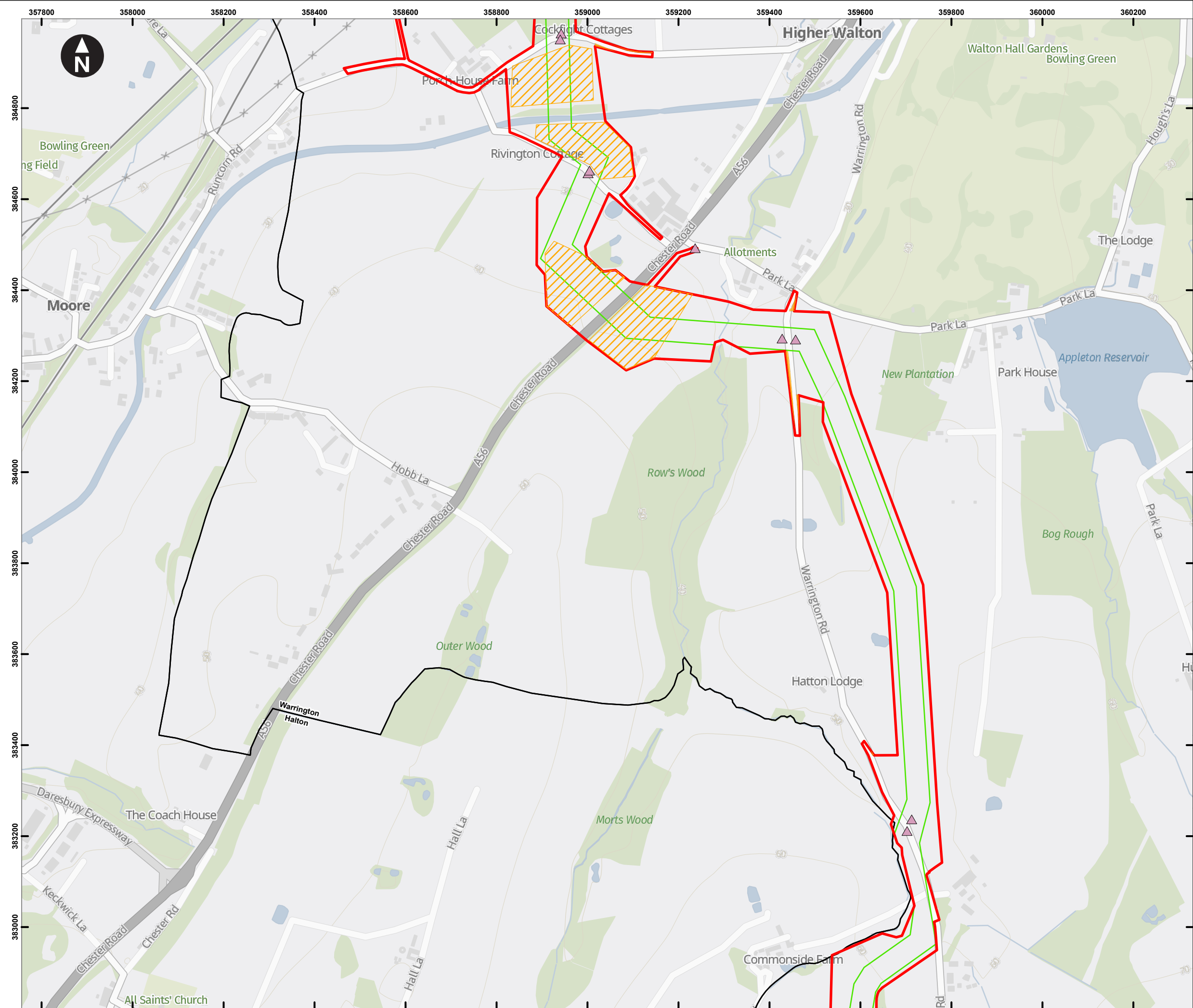
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

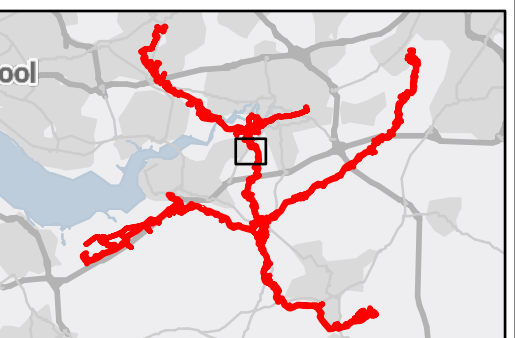
Figure 2.1
Project Overview
North Corridor
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

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Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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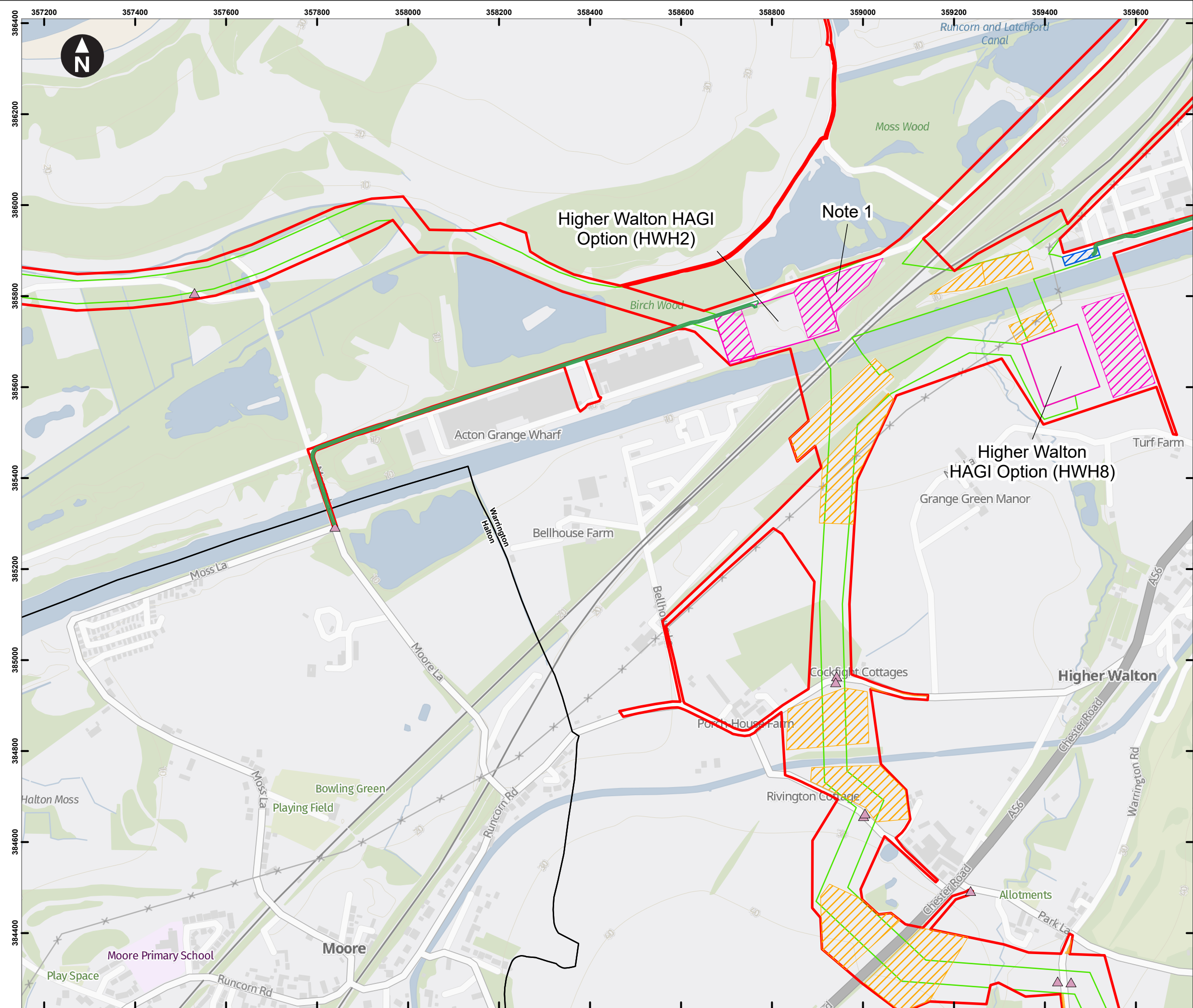
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
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Figure 2.1
Project Overview
North Corridor
Sheet: 11 of 38

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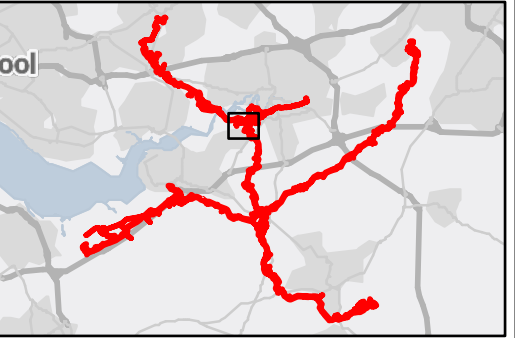


Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Hydrogen Above Ground Installation Limits of Deviation
- Pigging Area Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
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- Permanent Access
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- Light Construction Access (Light Vehicles Only)

Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



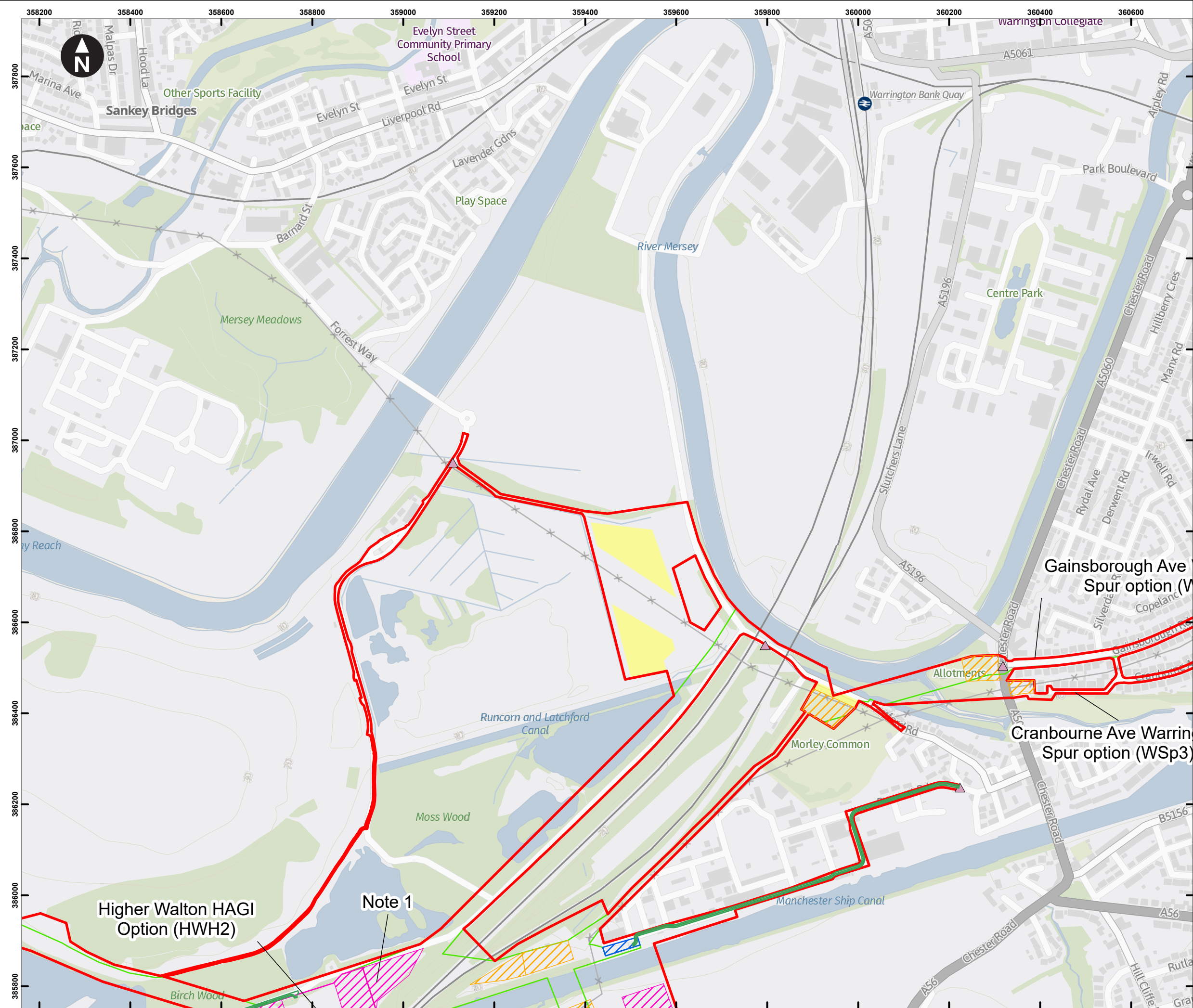
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Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

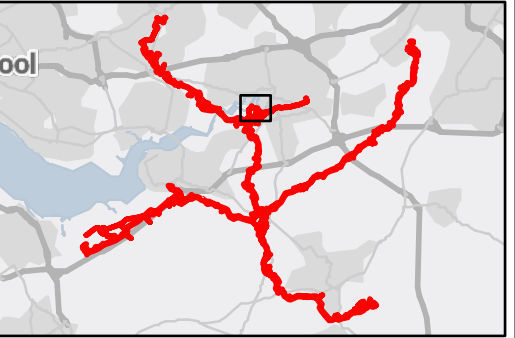
Figure 2.1
Project Overview
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Hydrogen Above Ground Installation Limits of Deviation
- Piggering Area Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Piggering Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
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- Light Construction Access (Light Vehicles Only)

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Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



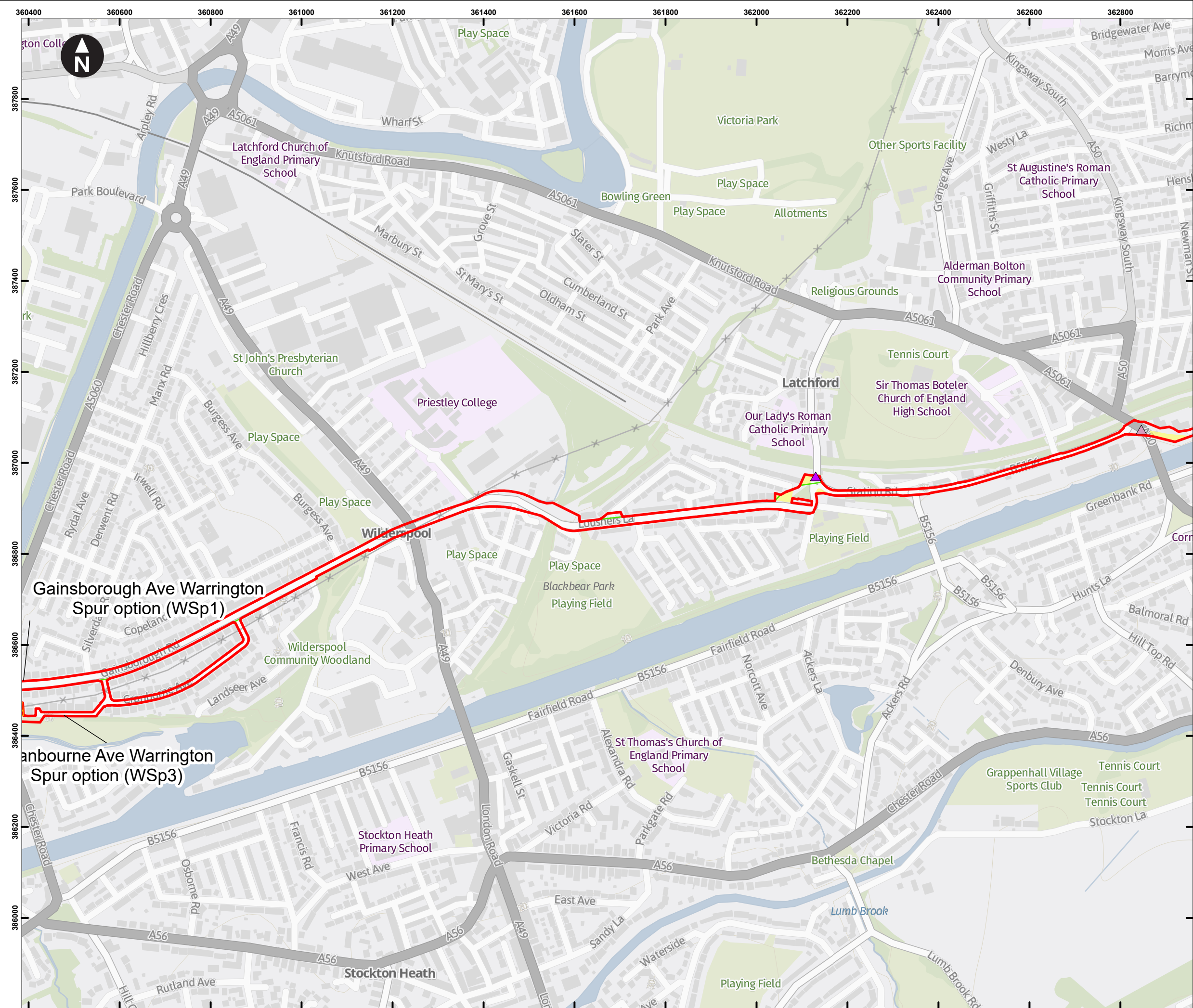
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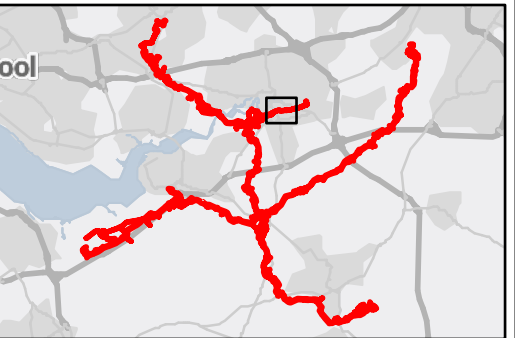
HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
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Figure 2.1
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North Corridor
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
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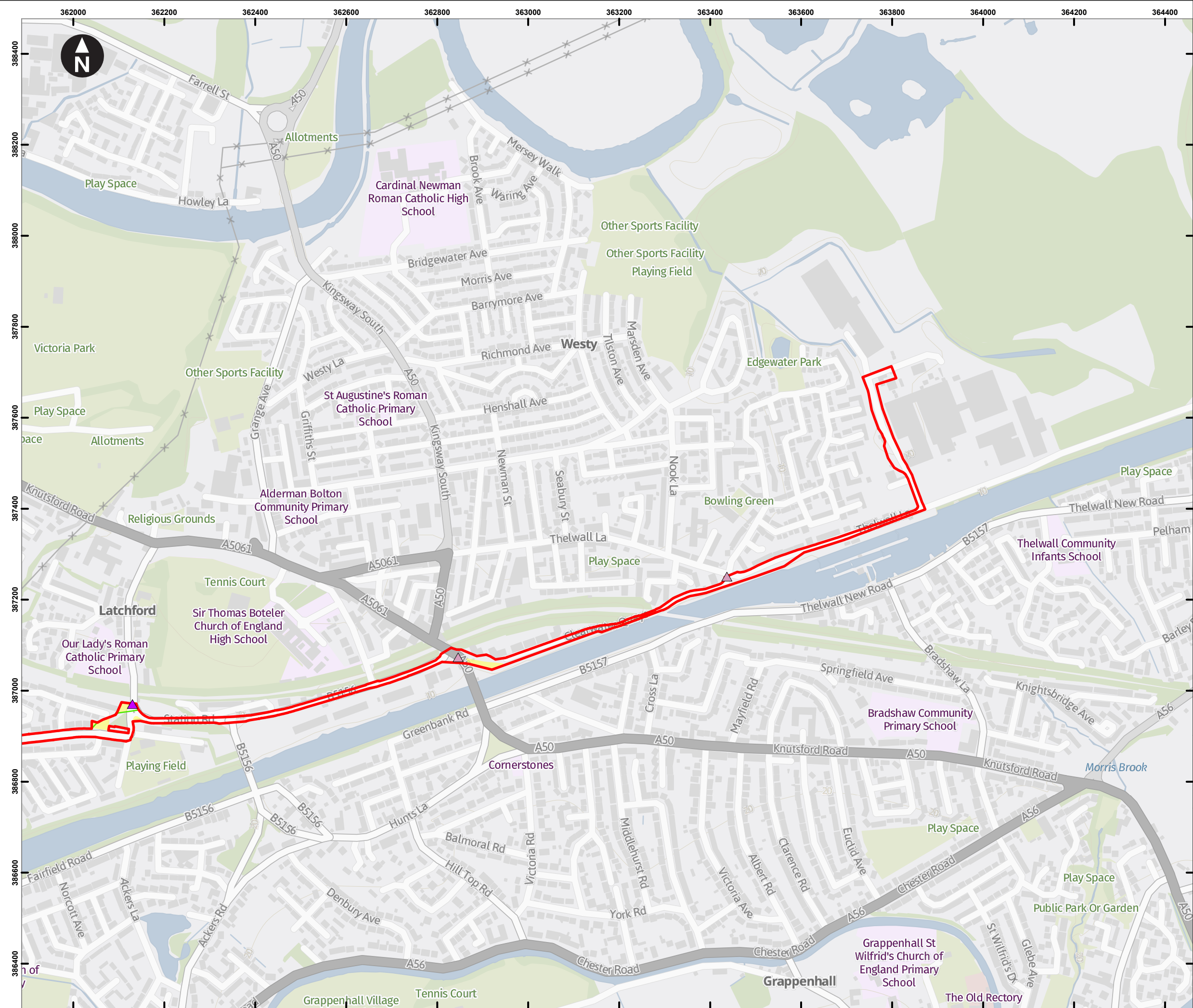
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Draft Environmental Statement
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Figure 2.1
Project Overview
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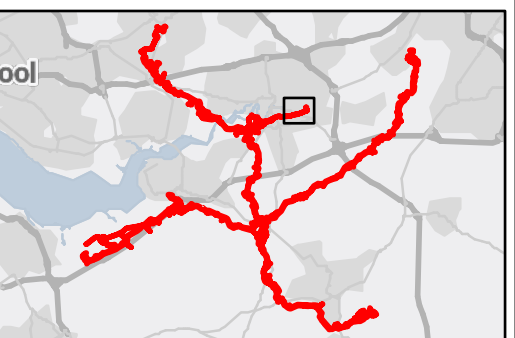
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
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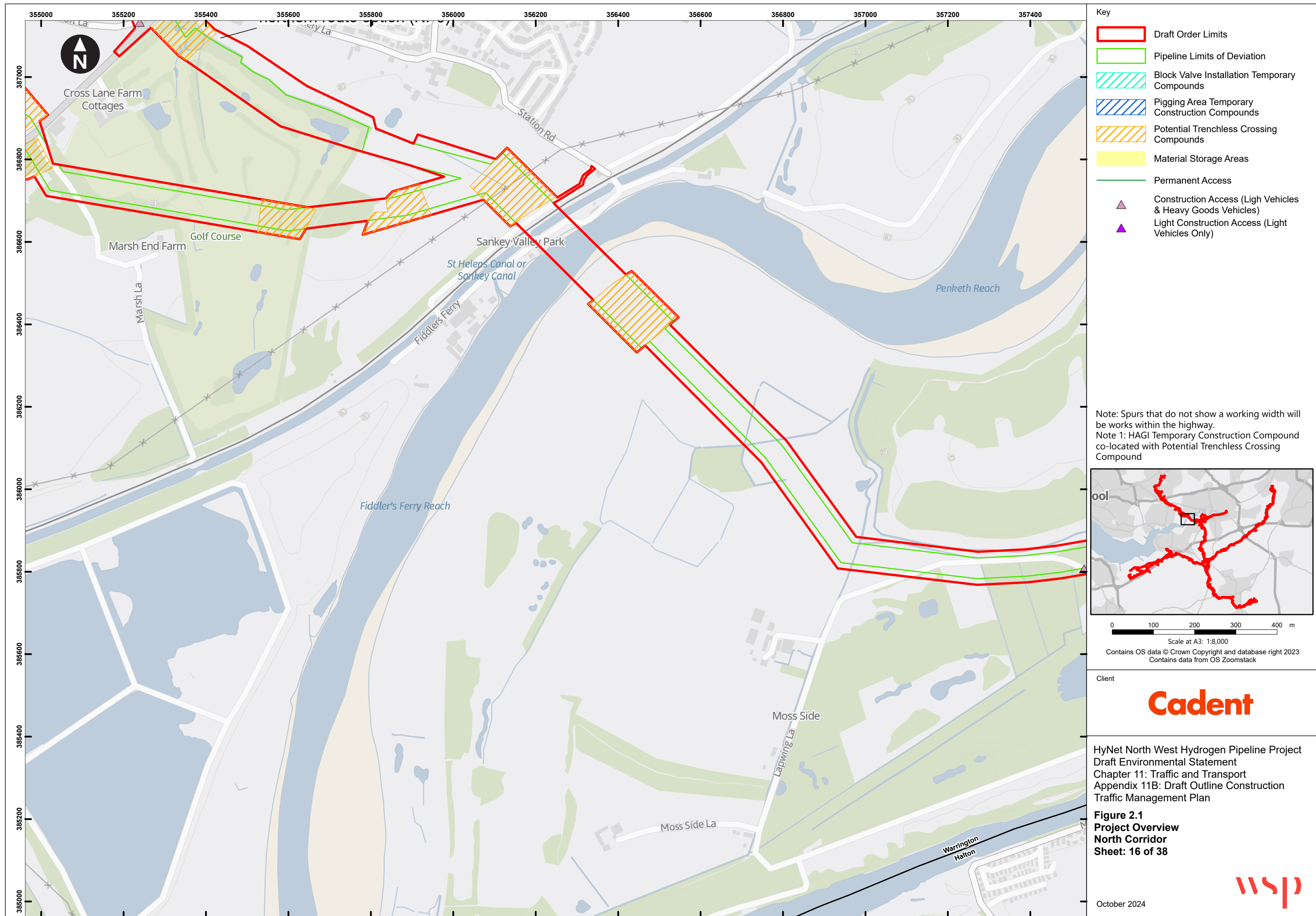
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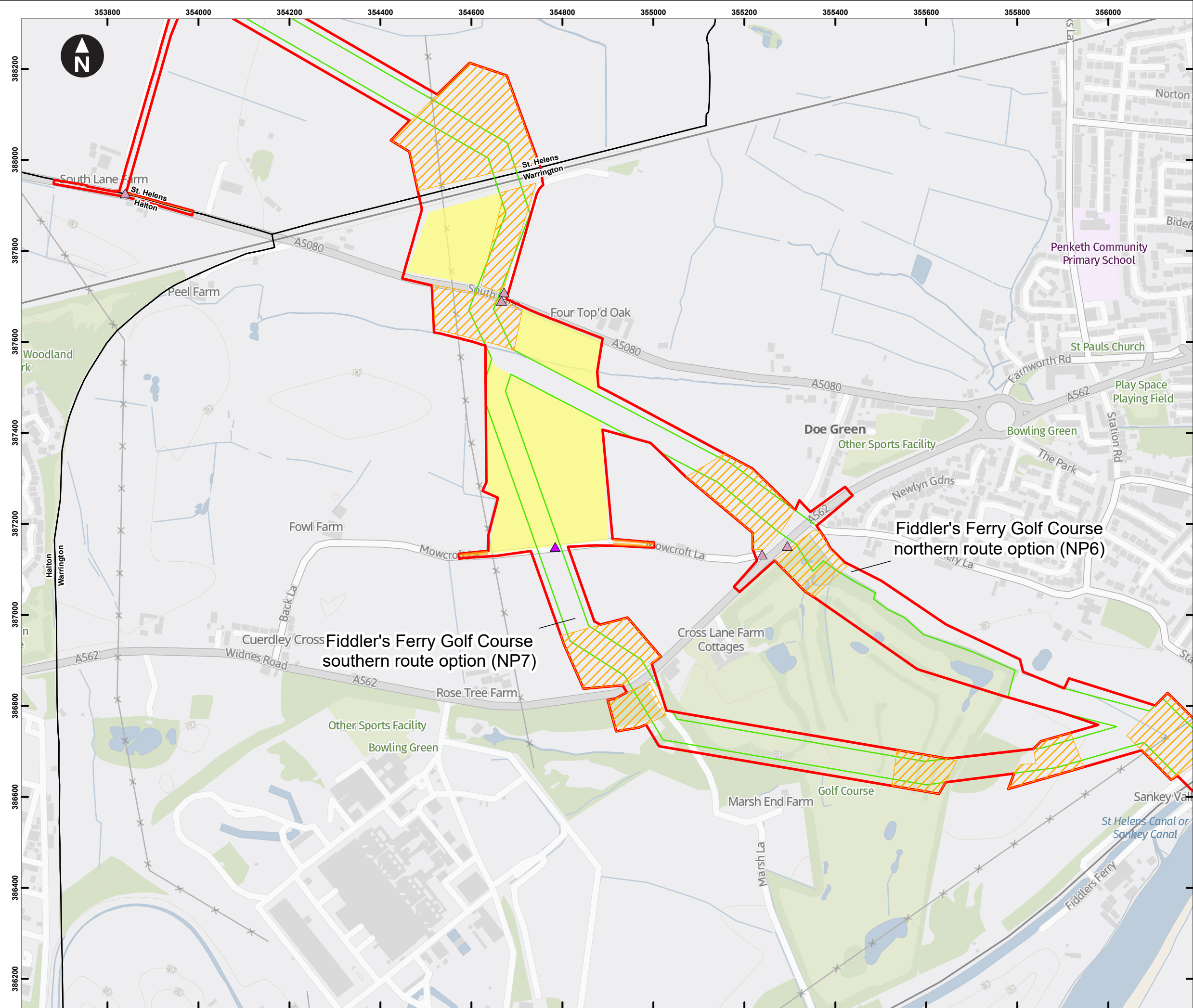
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Draft Environmental Statement
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Figure 2.1
Project Overview
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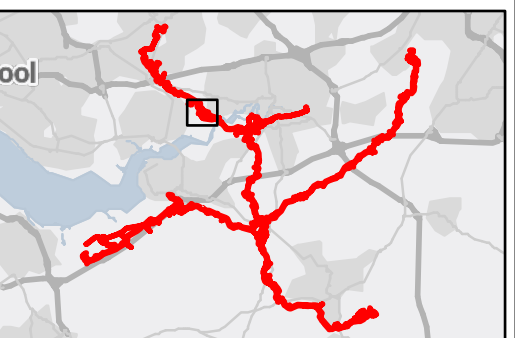




Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
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- Light Construction Access (Light Vehicles Only)
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



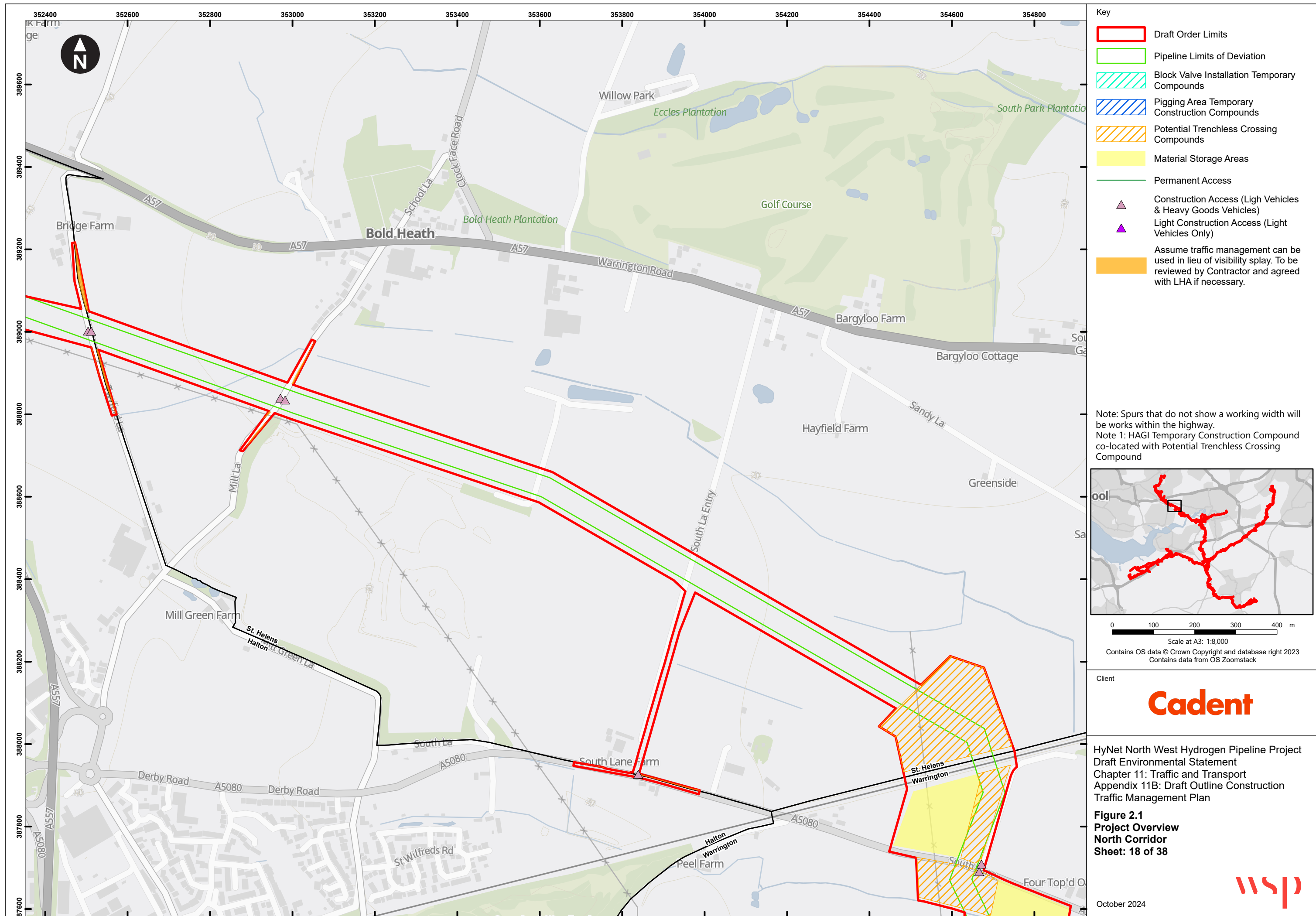
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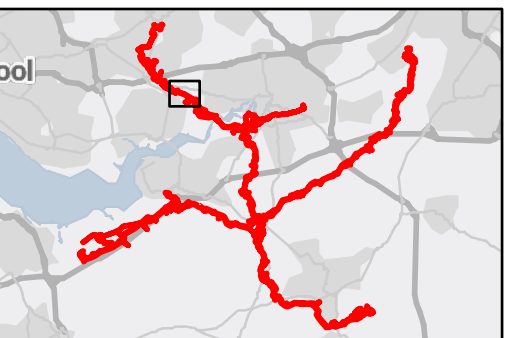
HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
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Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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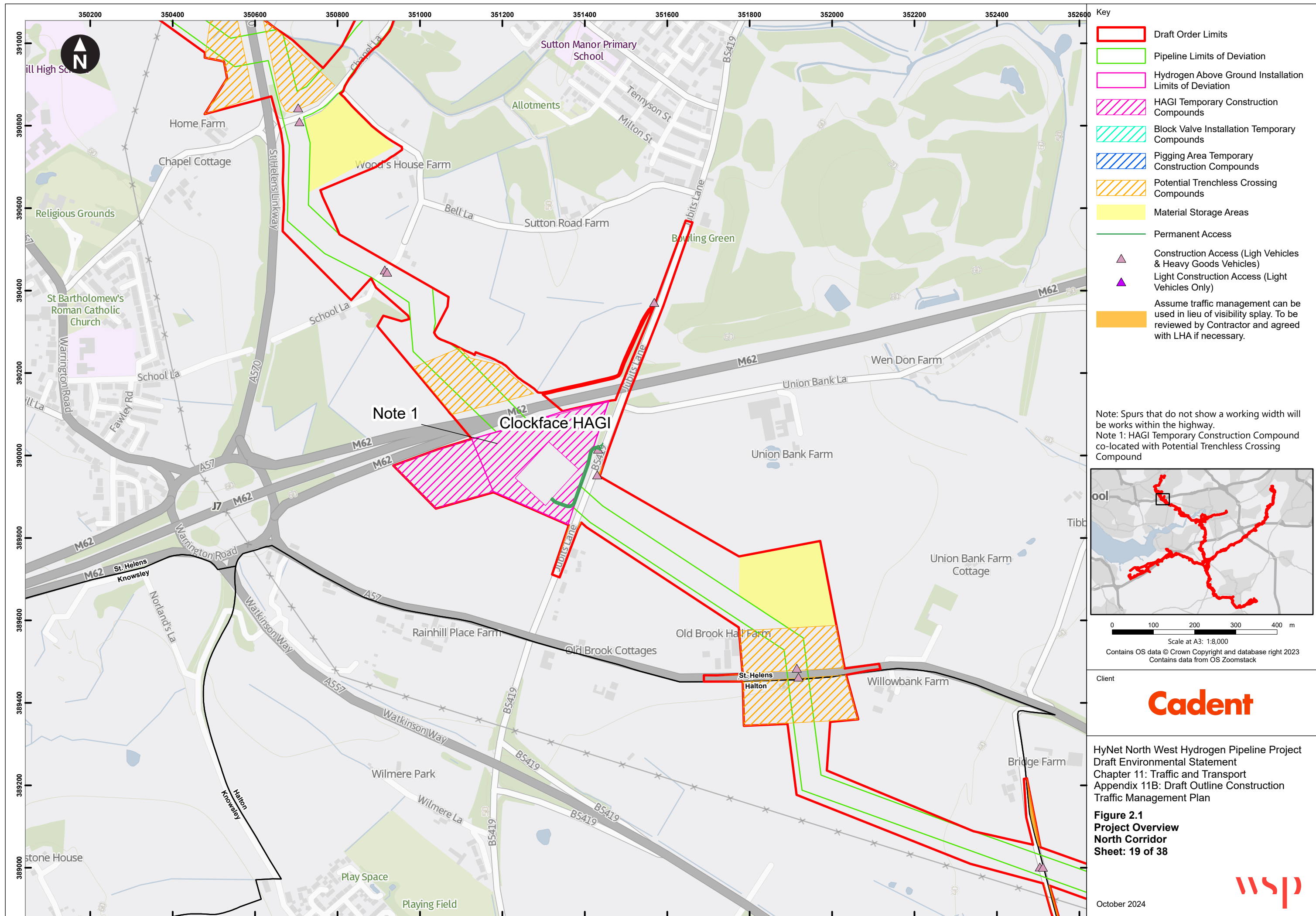
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
Project Overview
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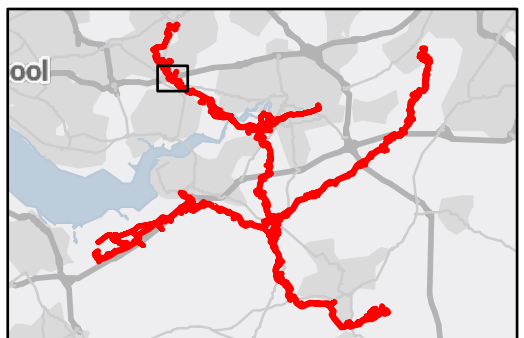
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Hydrogen Above Ground Installation Limits of Deviation
 - HAGI Temporary Construction Compounds
 - Block Valve Installation Temporary Compounds
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 - Permanent Access
 - Construction Access (Light Vehicles & Heavy Goods Vehicles)
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Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



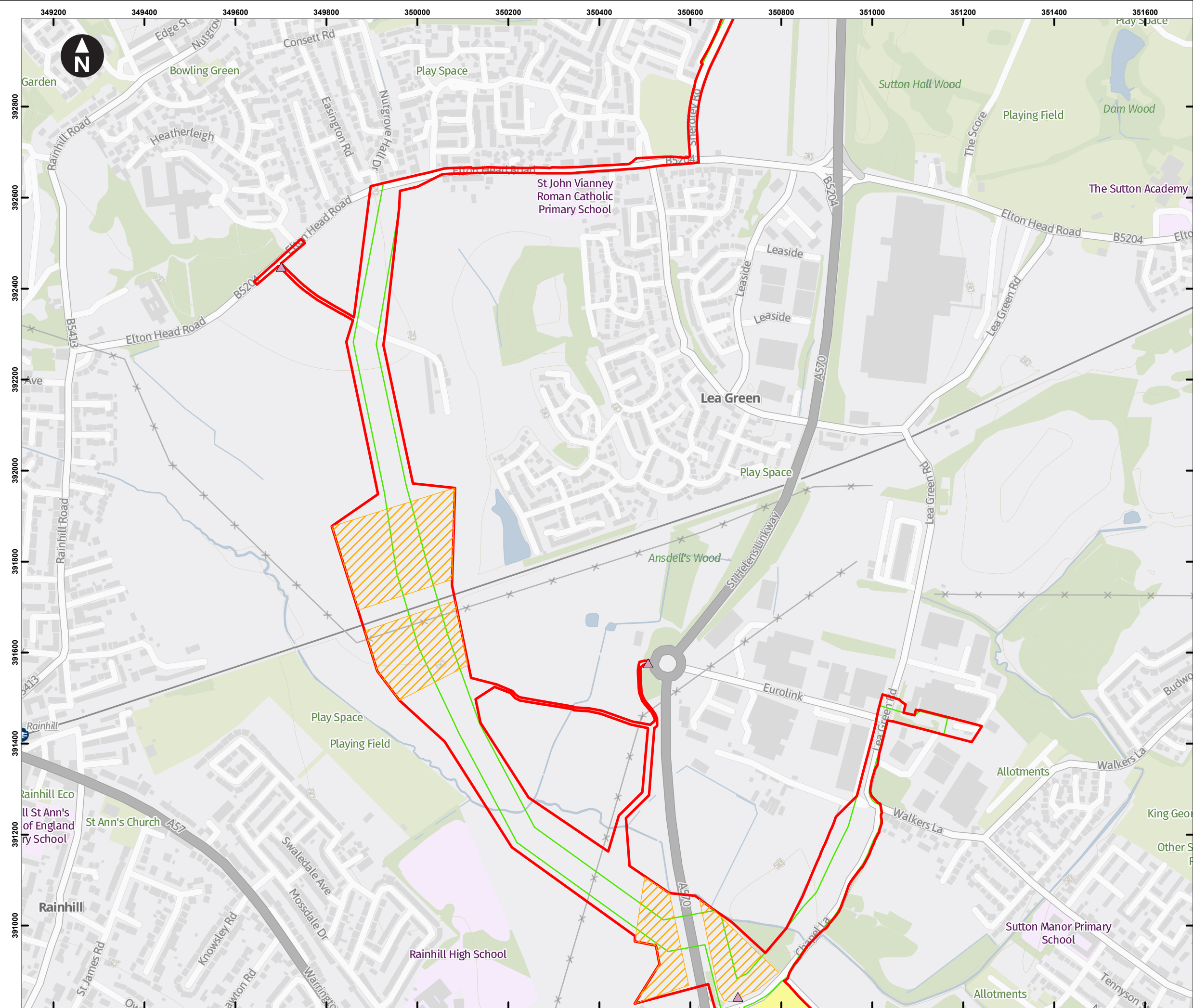
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Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

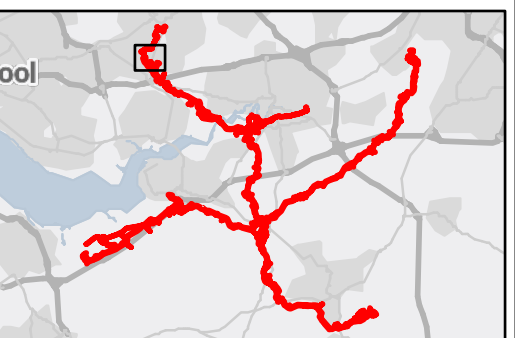
Figure 2.1
Project Overview
North Corridor
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
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 - Light Construction Access (Light Vehicles Only)

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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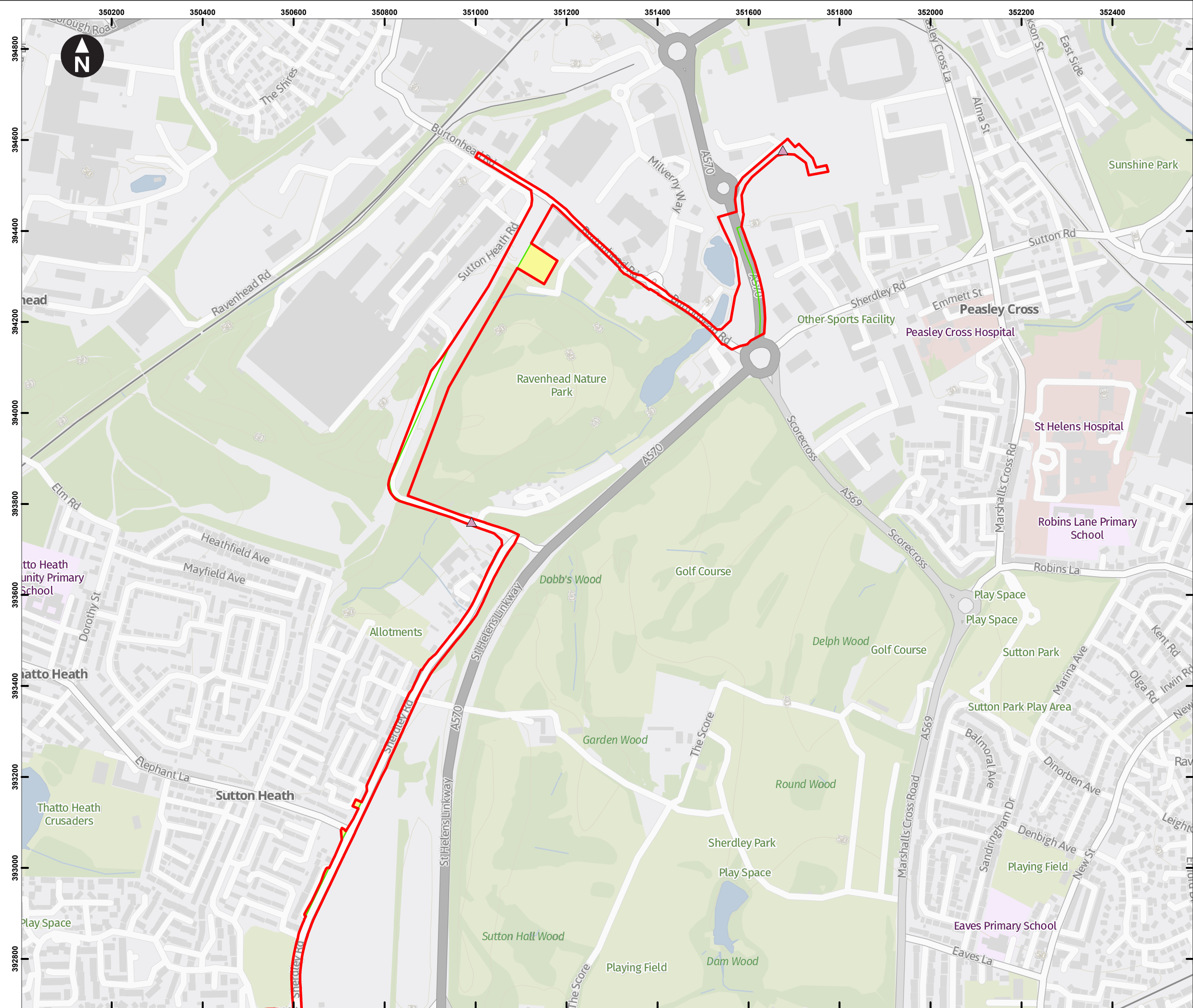
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
Project Overview
North Corridor
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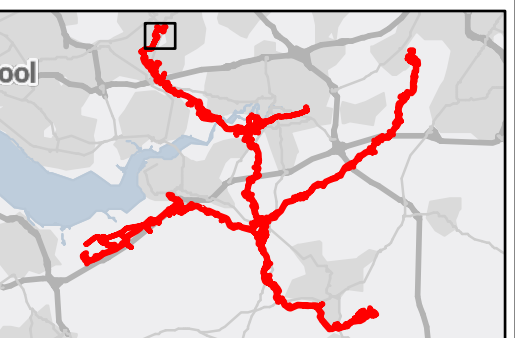
October 2024





- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
 - Material Storage Areas
 - Permanent Access
 - Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
 - Light Construction Access (Light Vehicles Only)

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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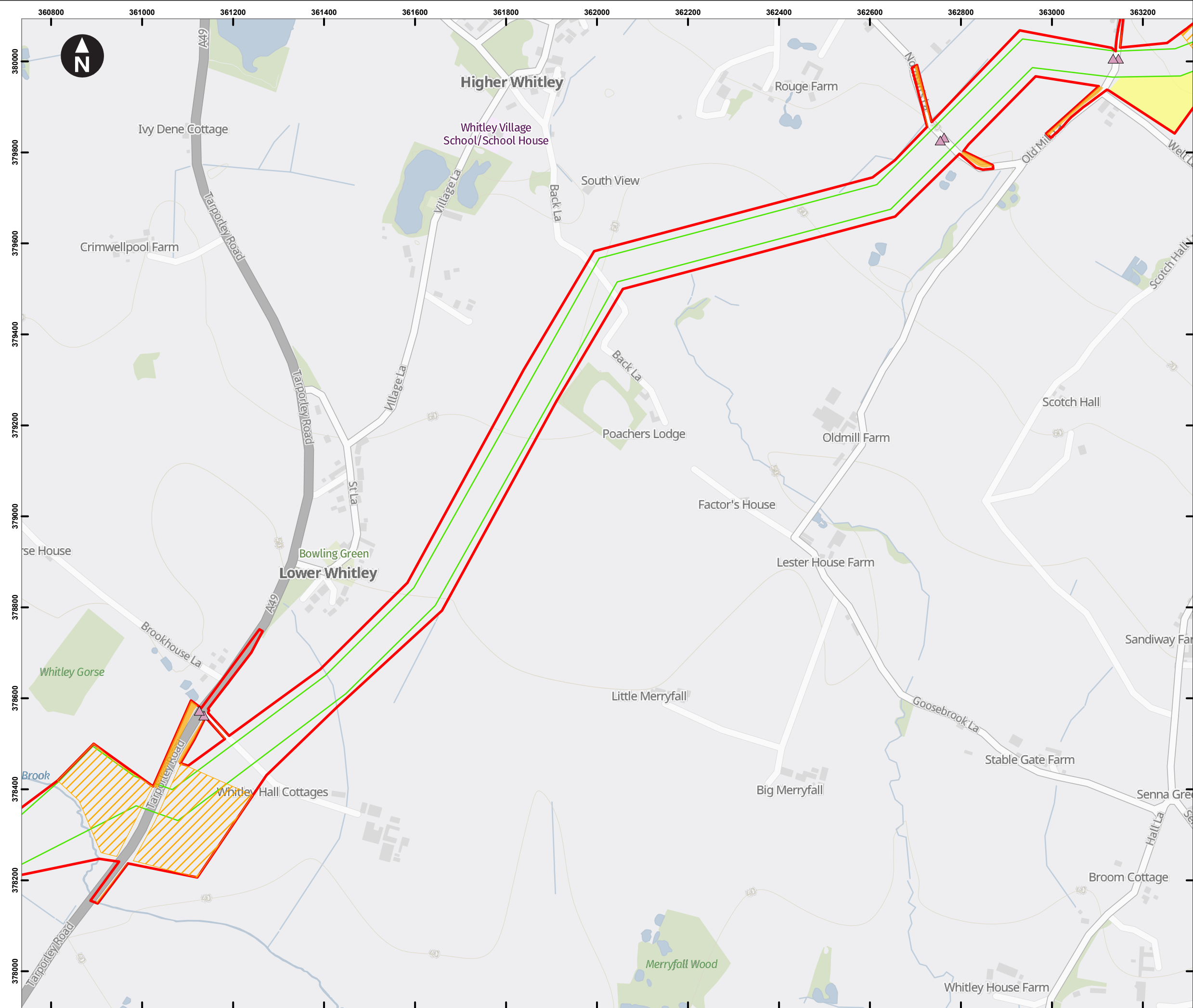
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
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Figure 2.1
Project Overview
North Corridor
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)

Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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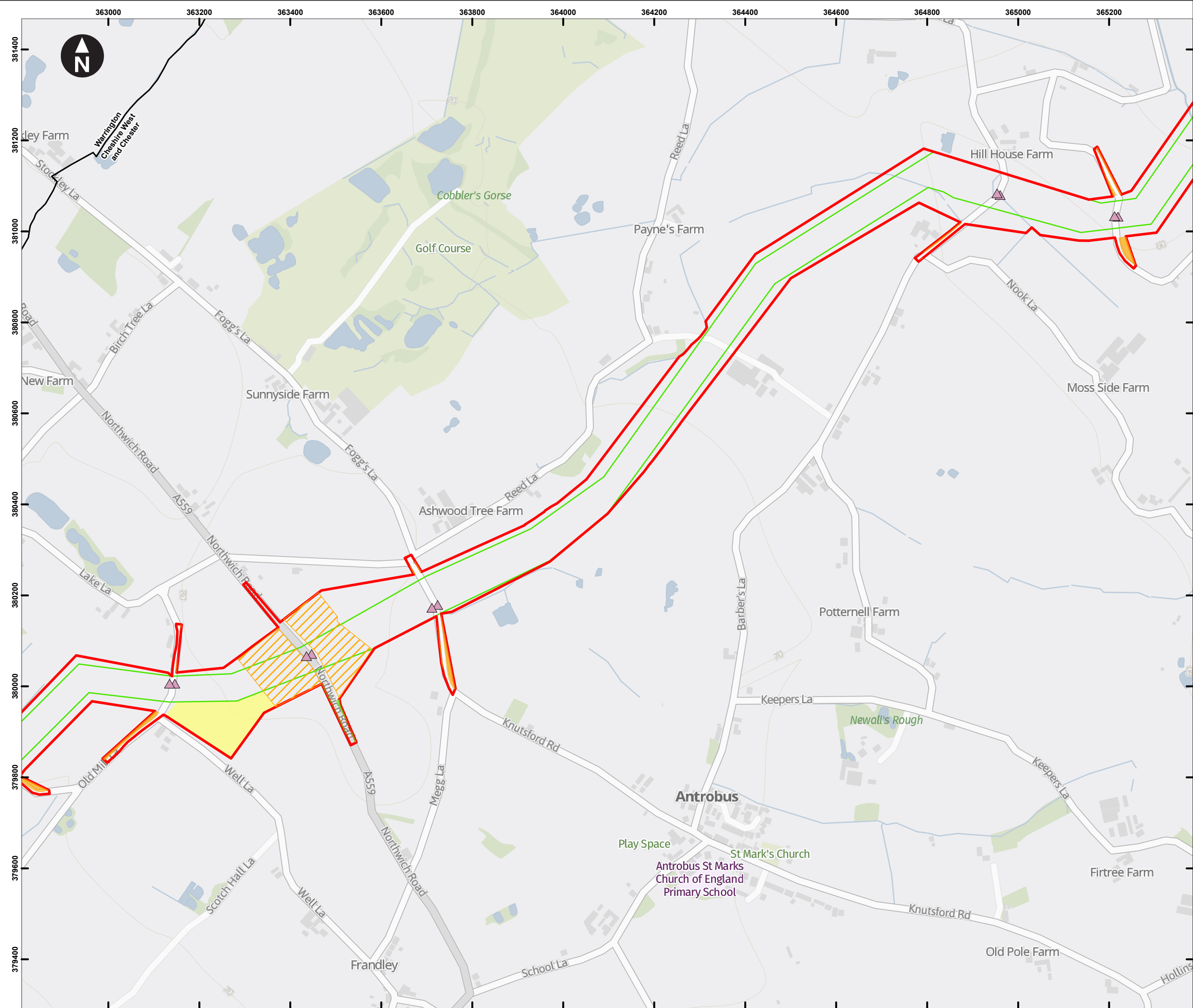
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
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Figure 2.1
Project Overview
East Corridor
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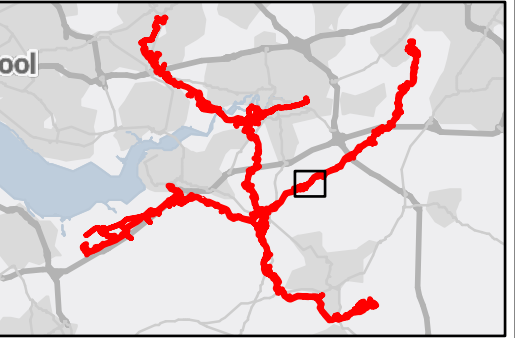
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)
- Visibility splay required for major road access. To be reviewed by Contractor.
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



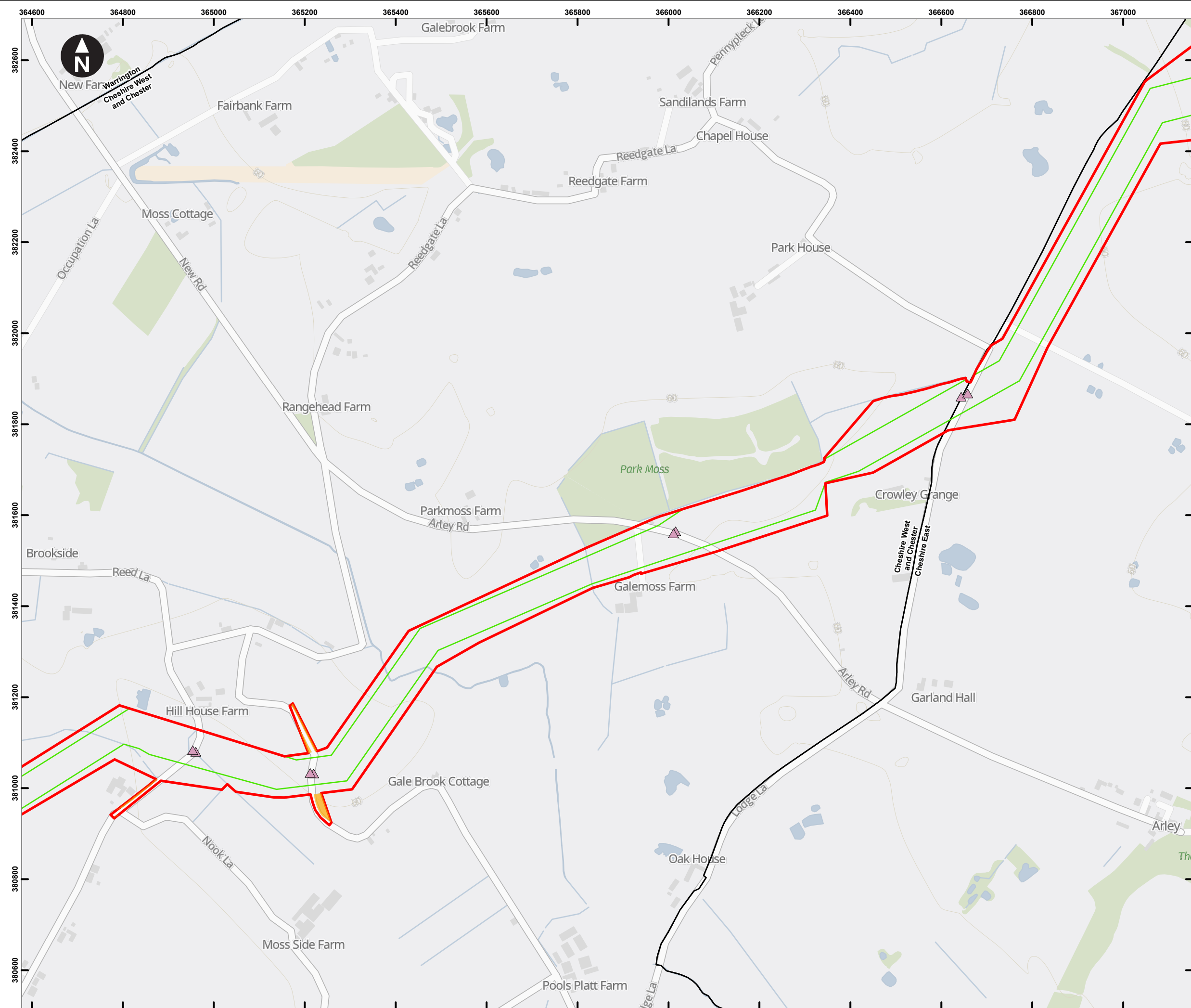
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Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
Project Overview
East Corridor
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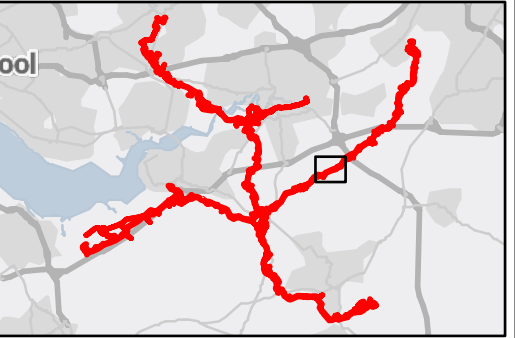


Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
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Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



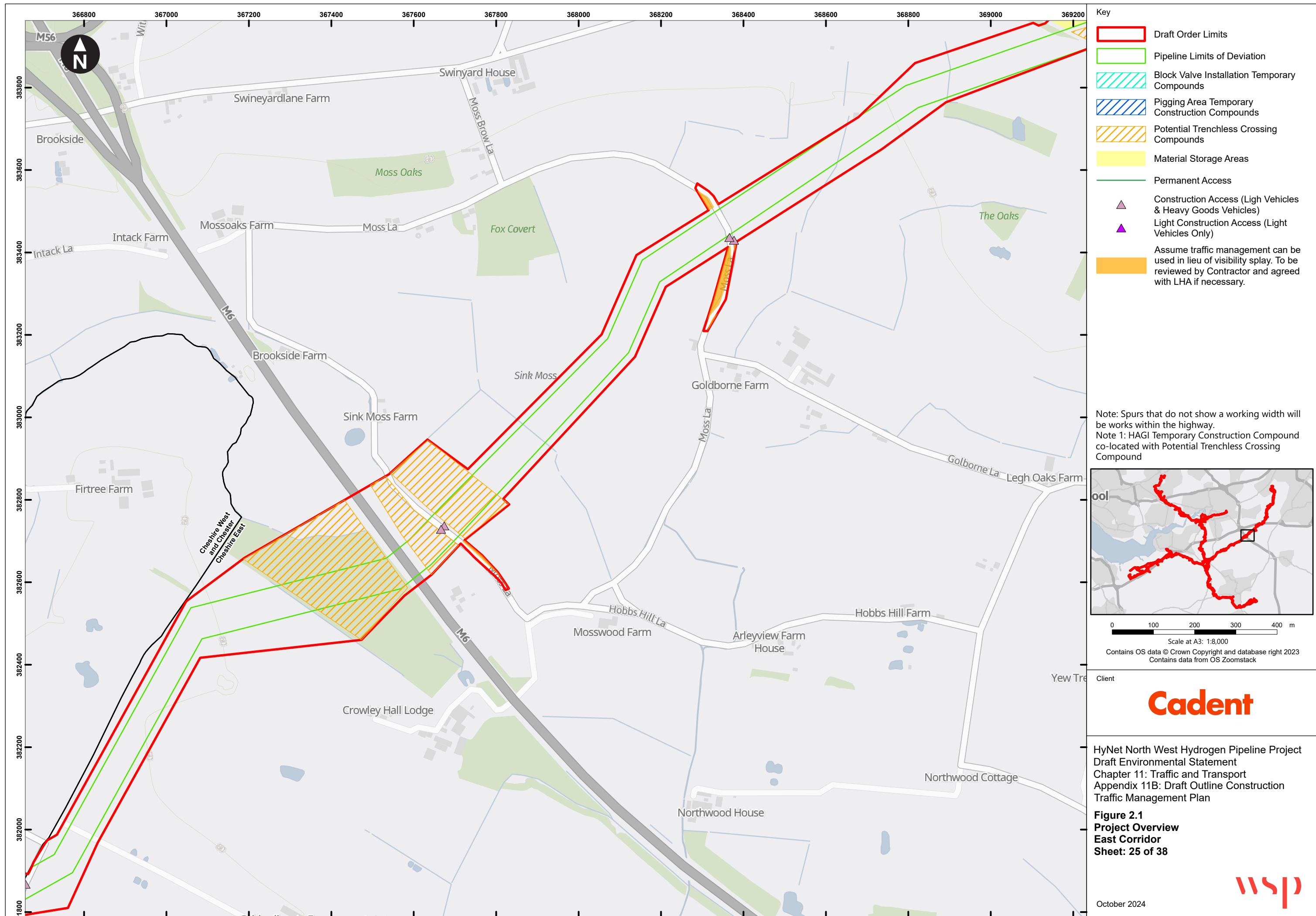
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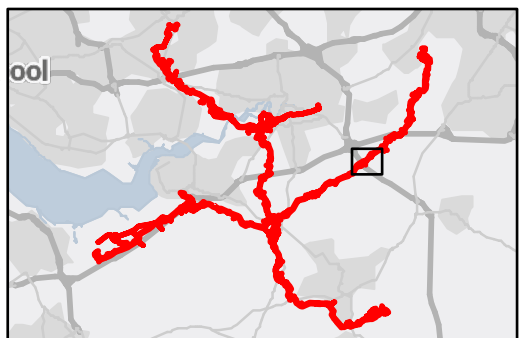
HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
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Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
Project Overview
East Corridor
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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Piggering Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
 - Material Storage Areas
 - Permanent Access
 - Construction Access (Light Vehicles & Heavy Goods Vehicles)
 - Light Construction Access (Light Vehicles Only)
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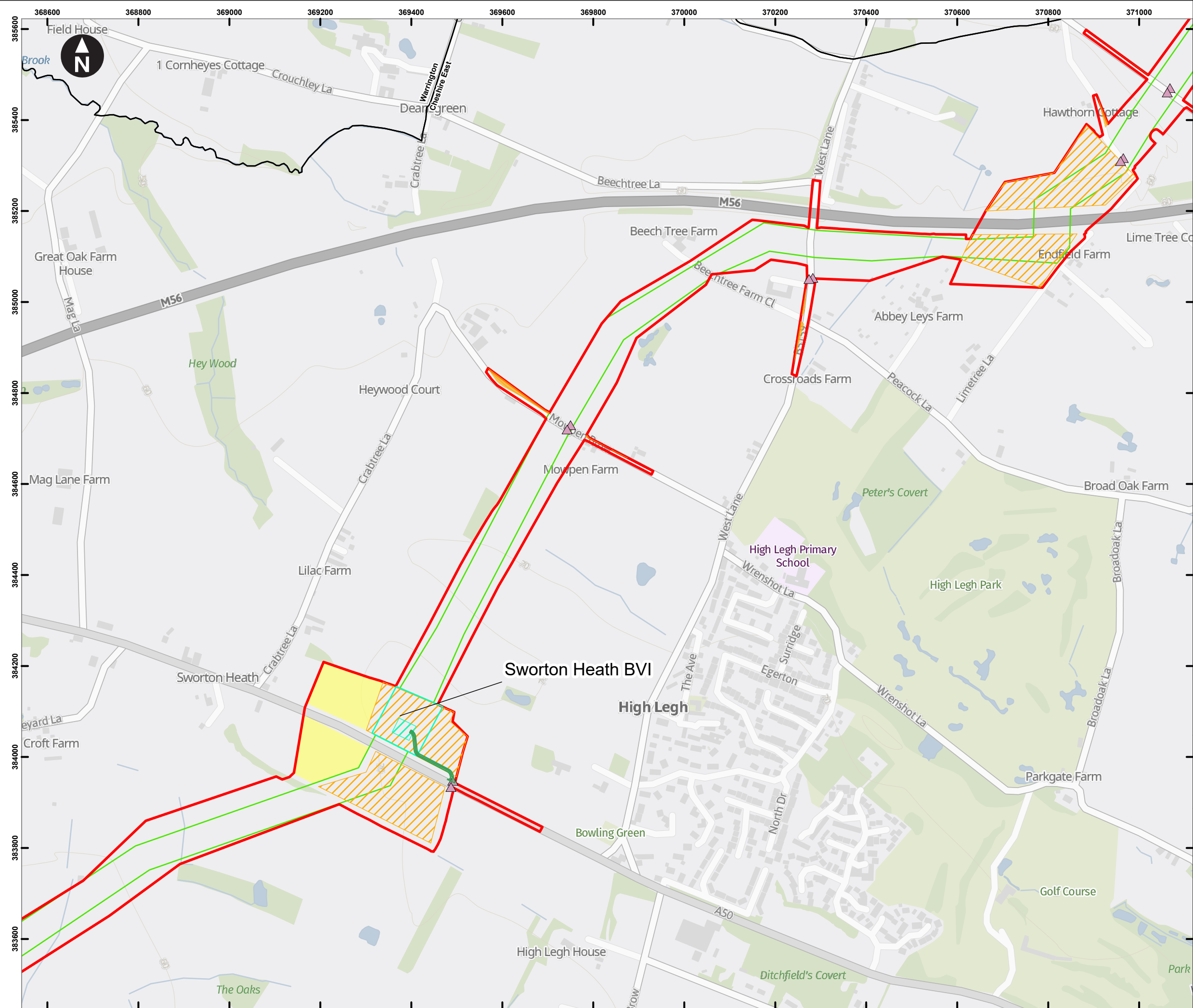
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HyNet North West Hydrogen Pipeline Project
Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction Traffic Management Plan

Figure 2.1
Project Overview
East Corridor
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
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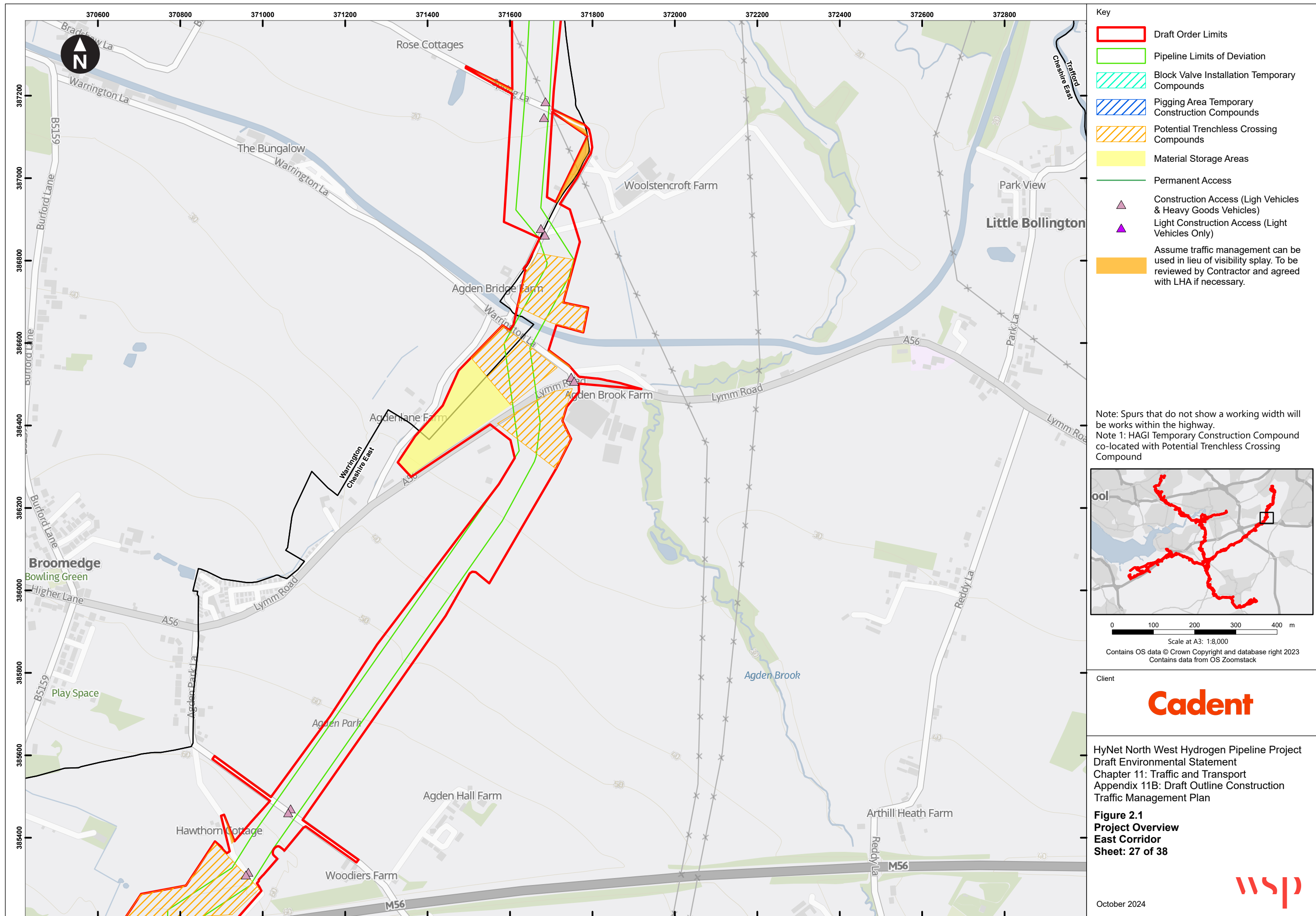
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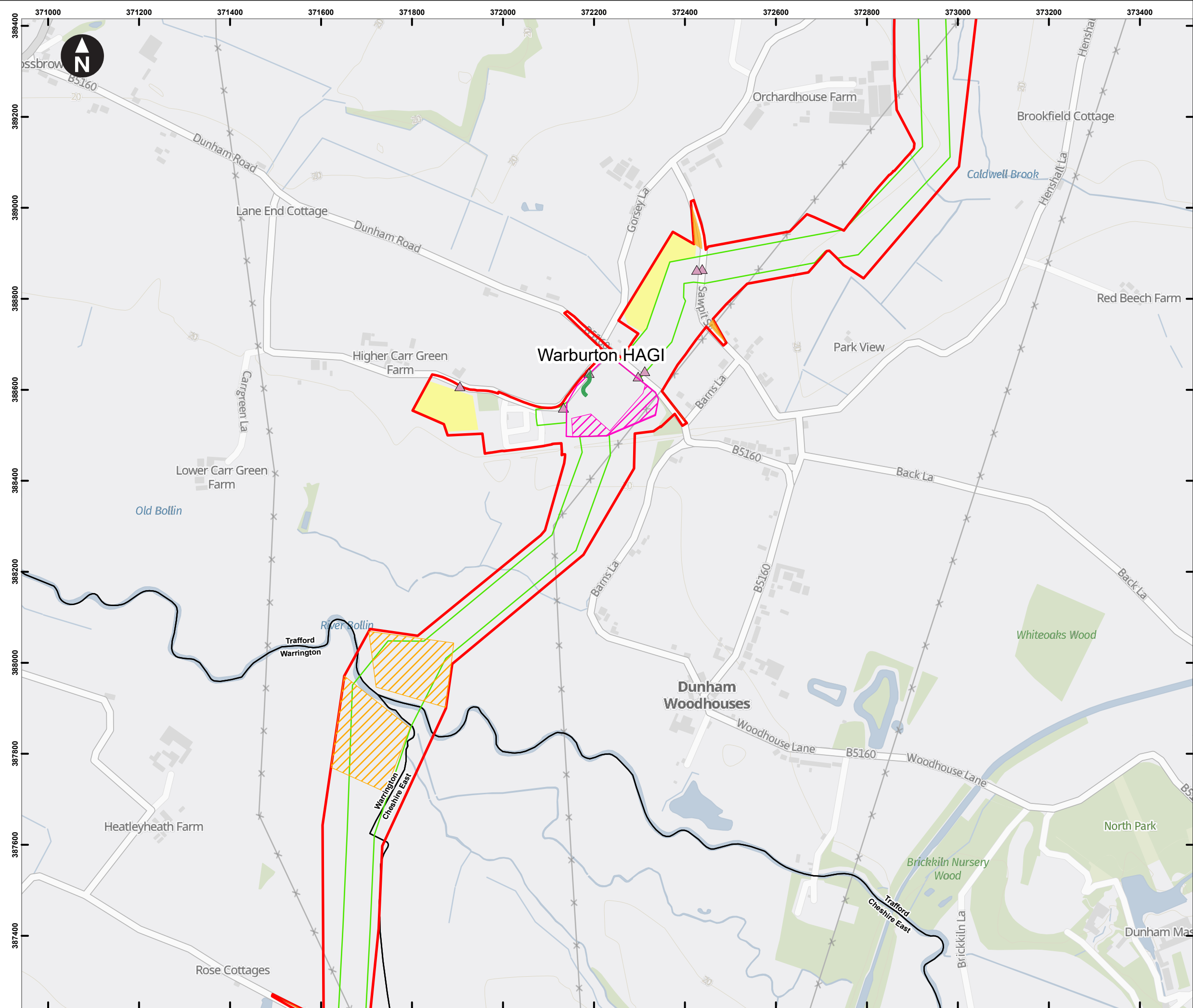
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Figure 2.1
Project Overview
East Corridor
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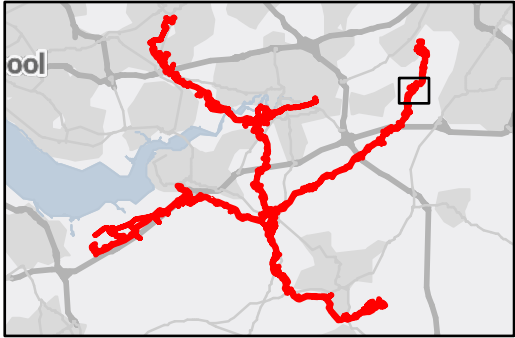


Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Hydrogen Above Ground Installation Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Light Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)

Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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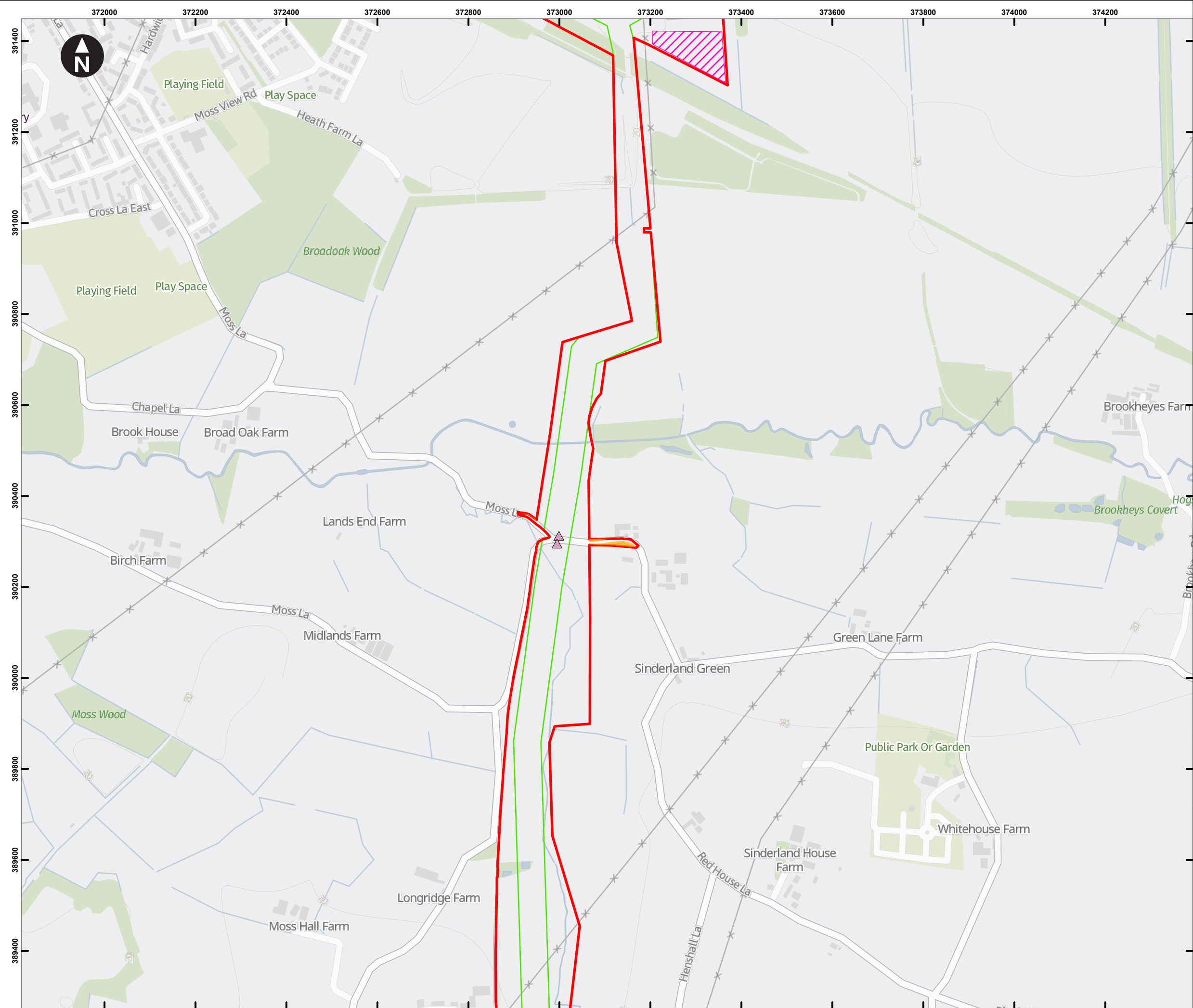
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Figure 2.1
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East Corridor
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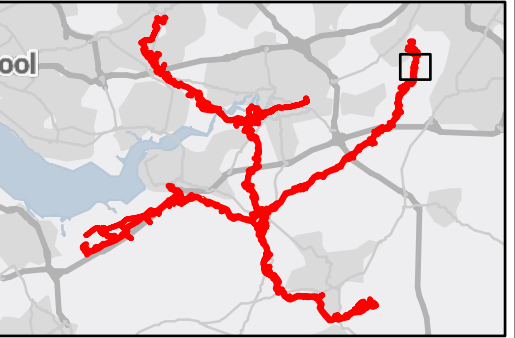


Key

- Draft Order Limits
- Pipeline Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
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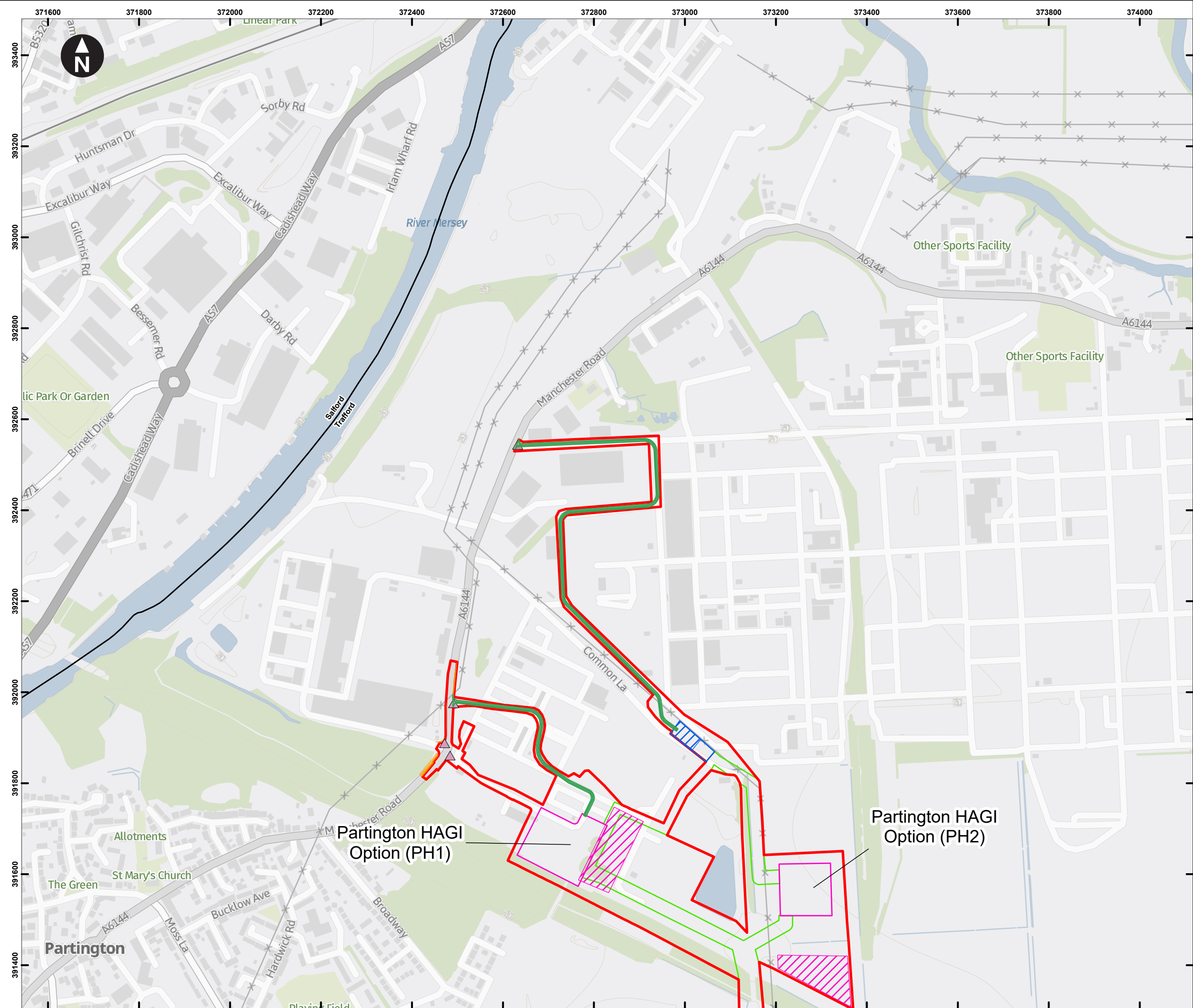
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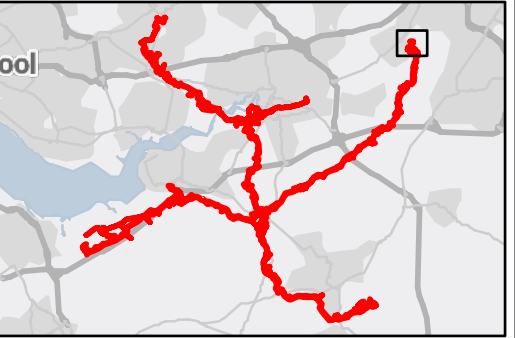


Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Hydrogen Above Ground Installation Limits of Deviation
- Pigging Area Limits of Deviation
- HAGI Temporary Construction Compounds
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
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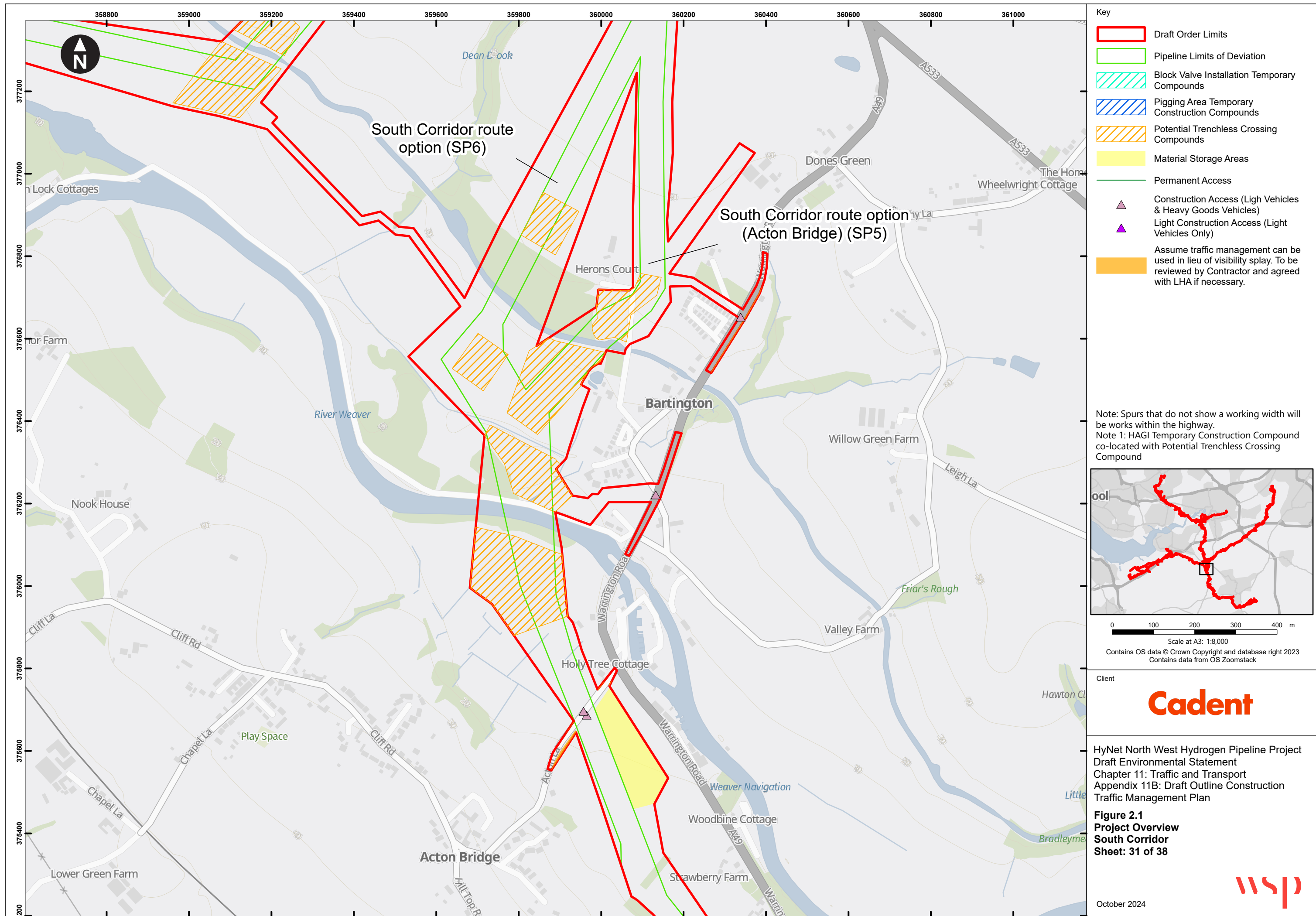
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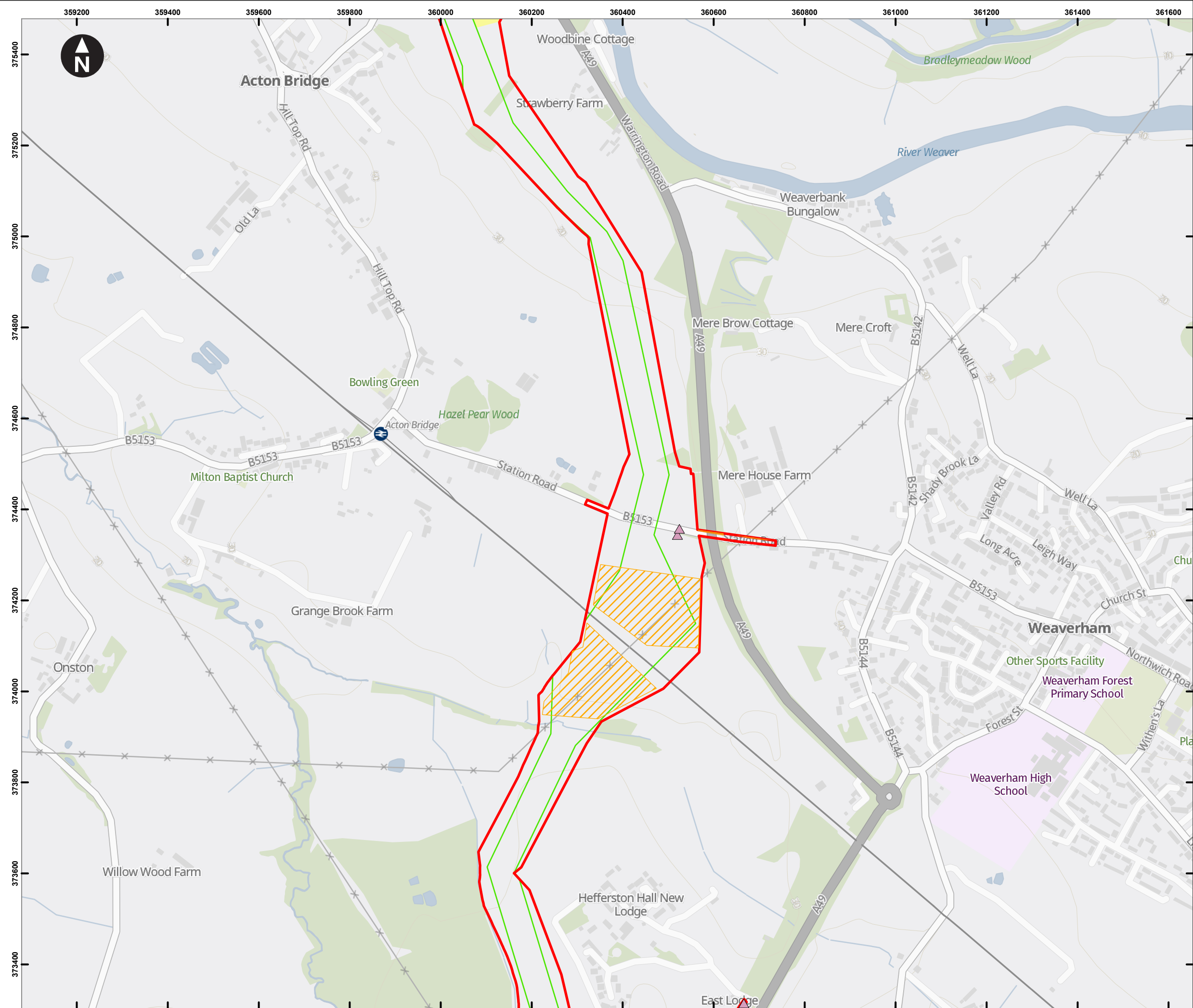
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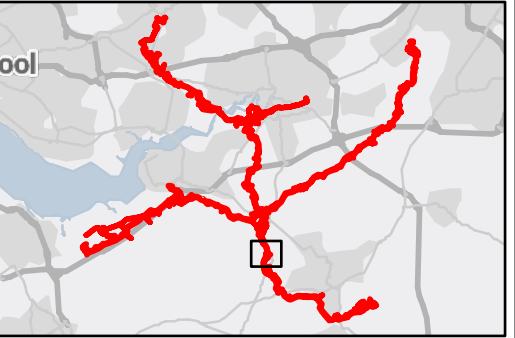




Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Piggering Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
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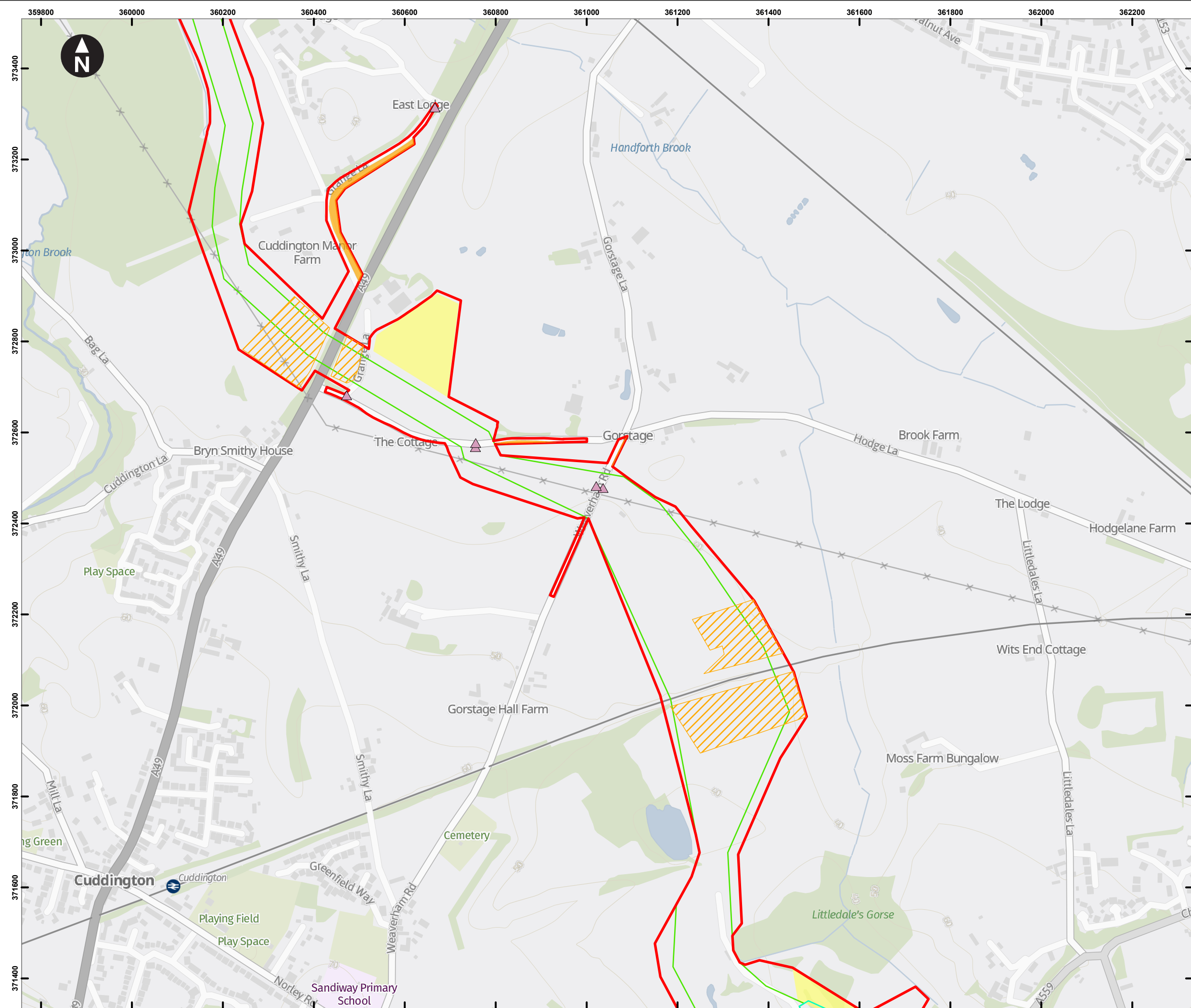


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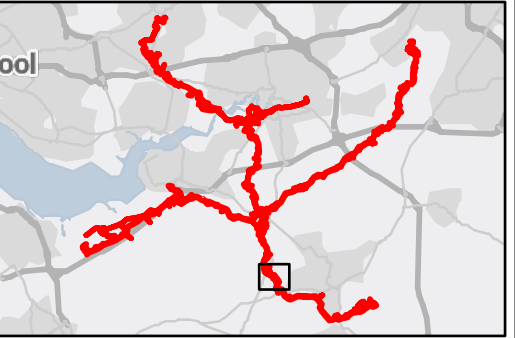


Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
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- Permanent Access
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- Light Construction Access (Light Vehicles Only)

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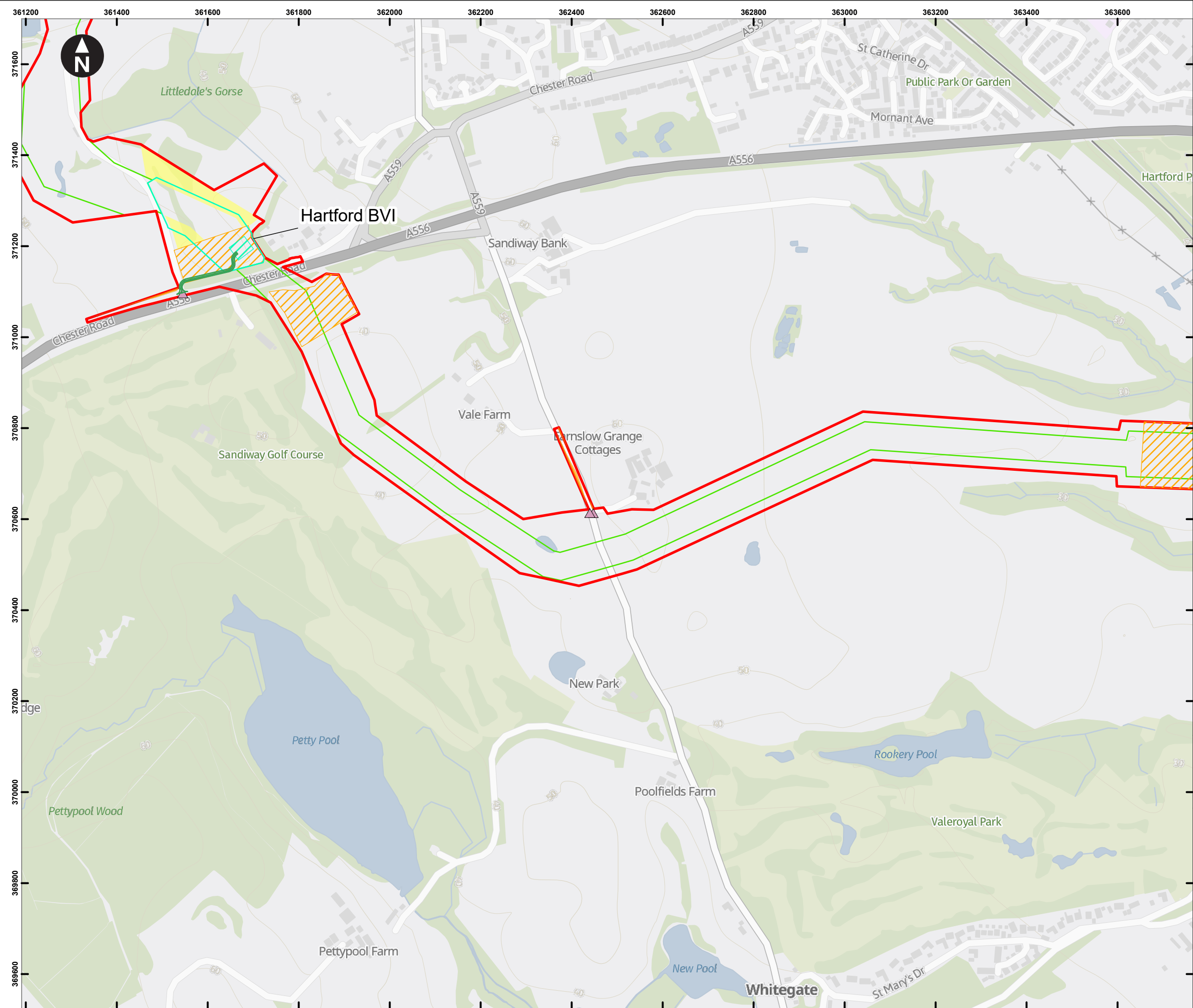
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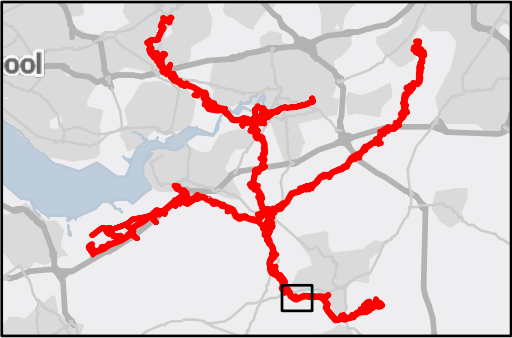


Key

- Draft Order Limits
- Pipeline Limits of Deviation
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- Block Valve Installation Temporary Compounds
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Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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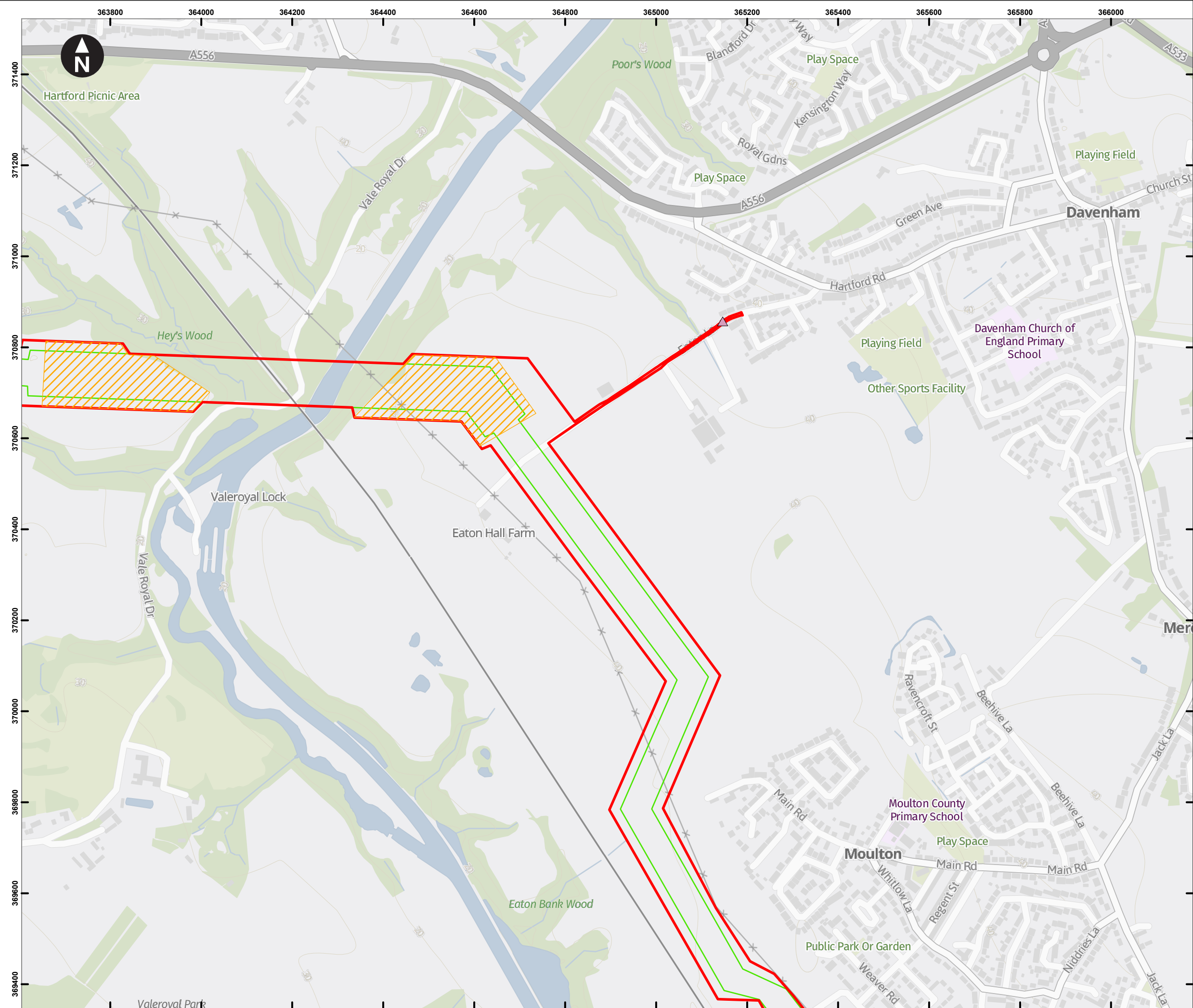


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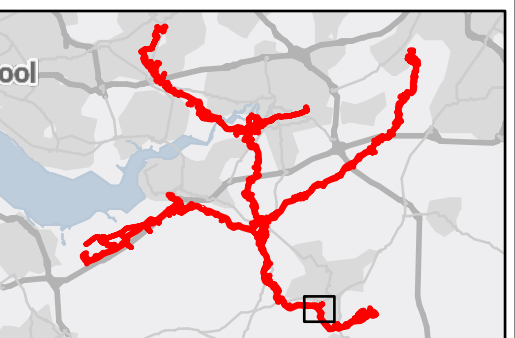


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- Key
- Draft Order Limits
 - Pipeline Limits of Deviation
 - Block Valve Installation Temporary Compounds
 - Pigging Area Temporary Construction Compounds
 - Potential Trenchless Crossing Compounds
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Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



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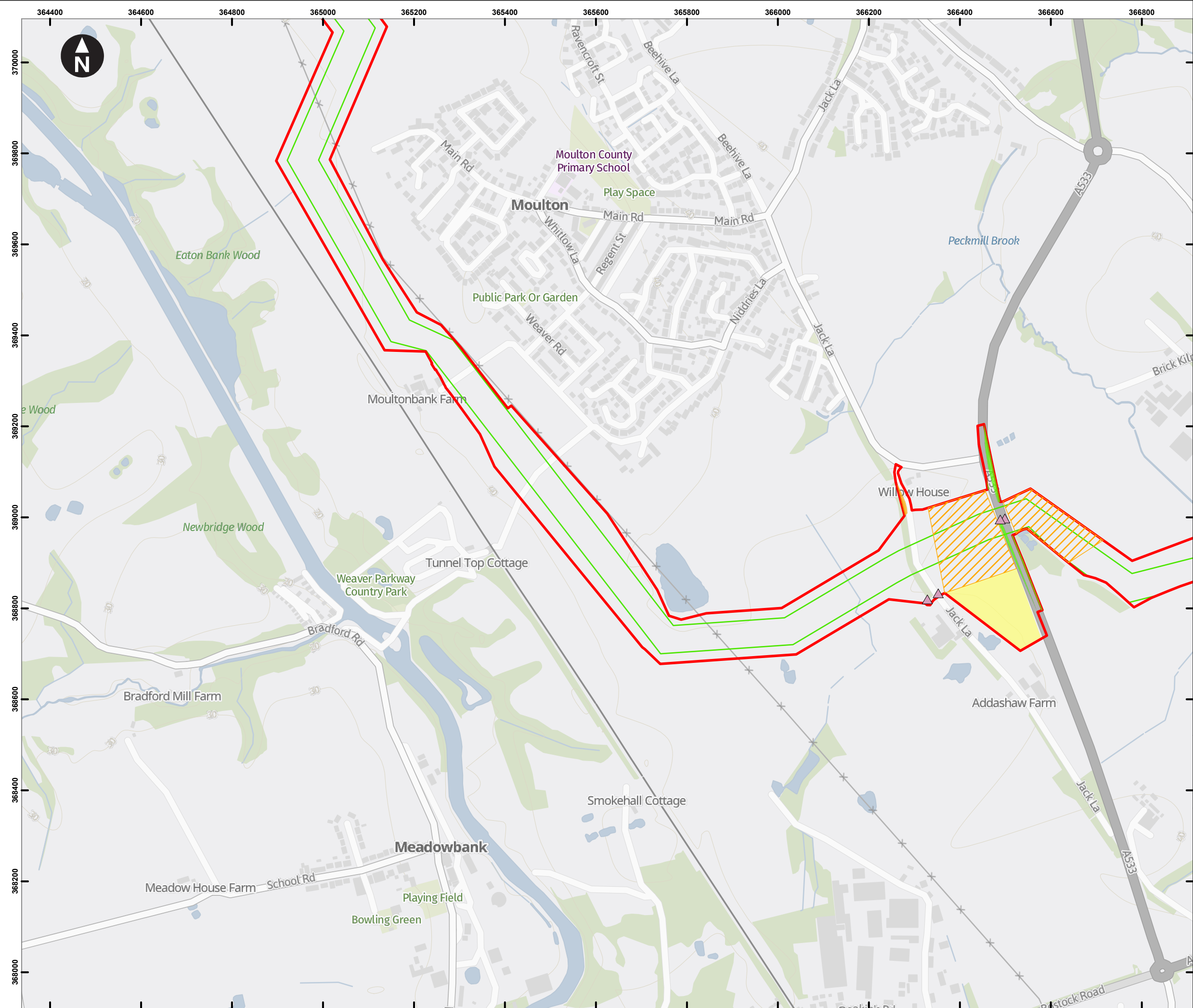
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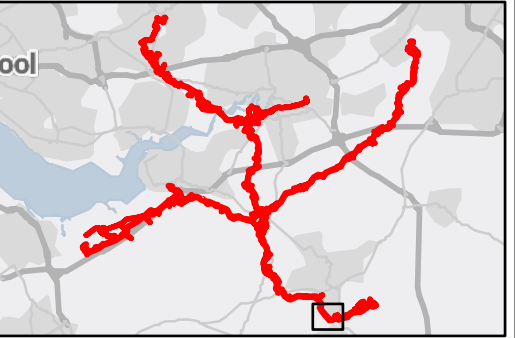
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Key

- Draft Order Limits
- Pipeline Limits of Deviation
- Block Valve Installation Temporary Compounds
- Pigging Area Temporary Construction Compounds
- Potential Trenchless Crossing Compounds
- Material Storage Areas
- Permanent Access
- Construction Access (Ligh Vehicles & Heavy Goods Vehicles)
- Light Construction Access (Light Vehicles Only)
- Visibility splay required for major road access. To be reviewed by Contractor.
- Assume traffic management can be used in lieu of visibility splay. To be reviewed by Contractor and agreed with LHA if necessary.

Note: Spurs that do not show a working width will be works within the highway.
Note 1: HAGI Temporary Construction Compound co-located with Potential Trenchless Crossing Compound



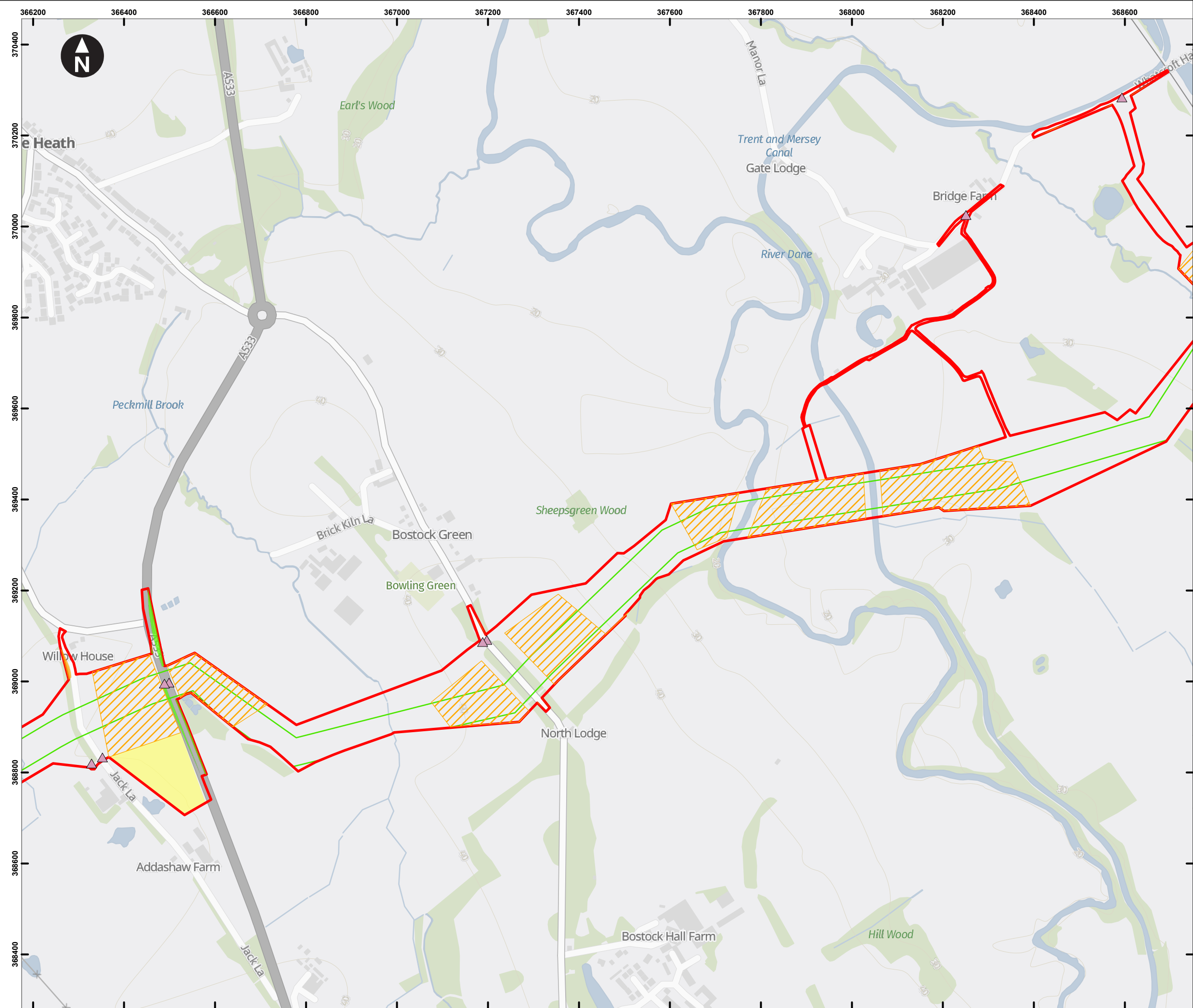
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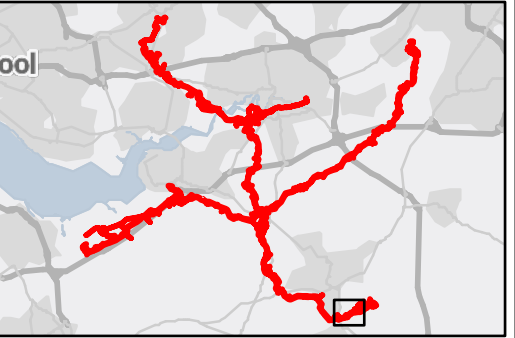
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- Draft Order Limits
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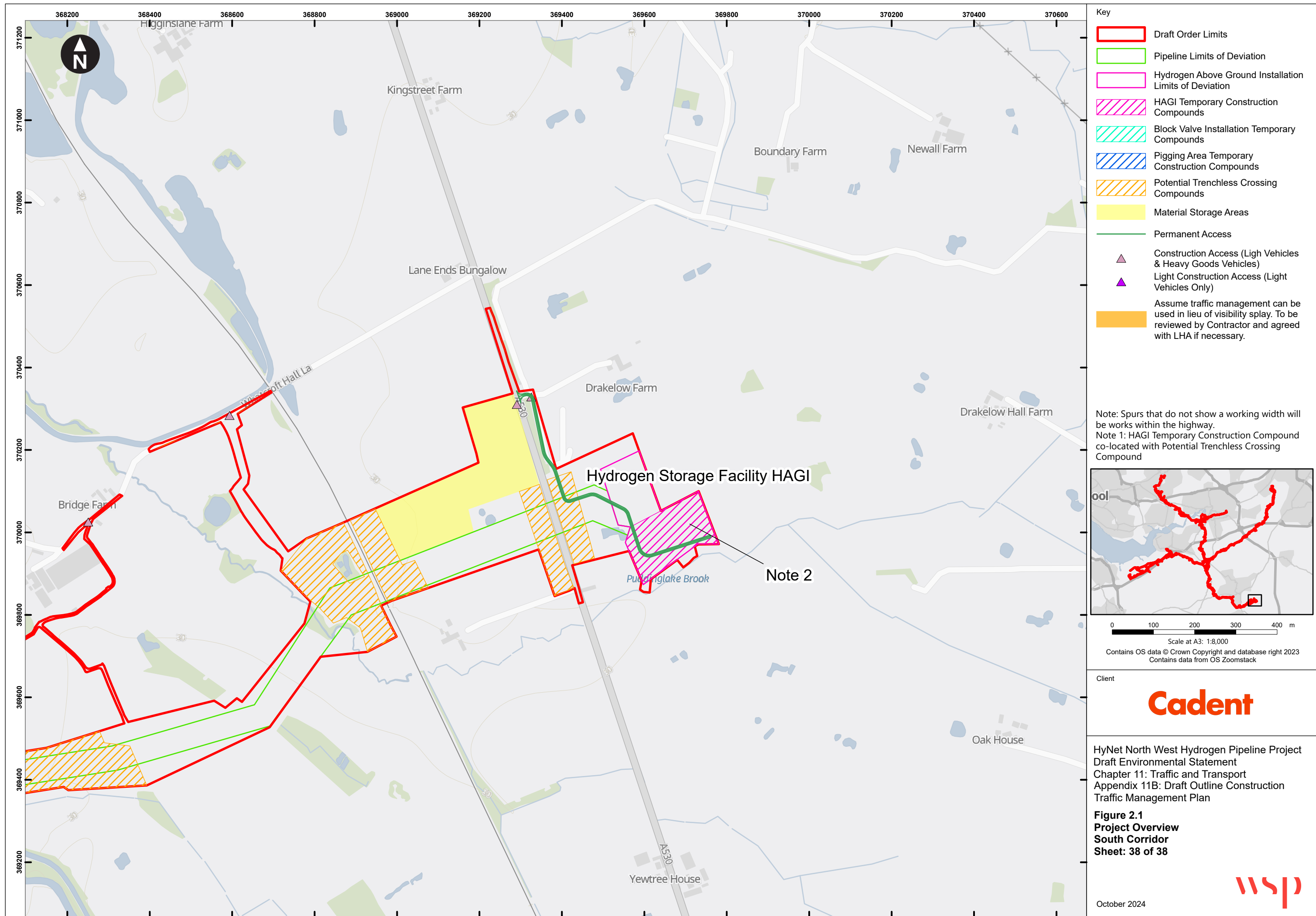
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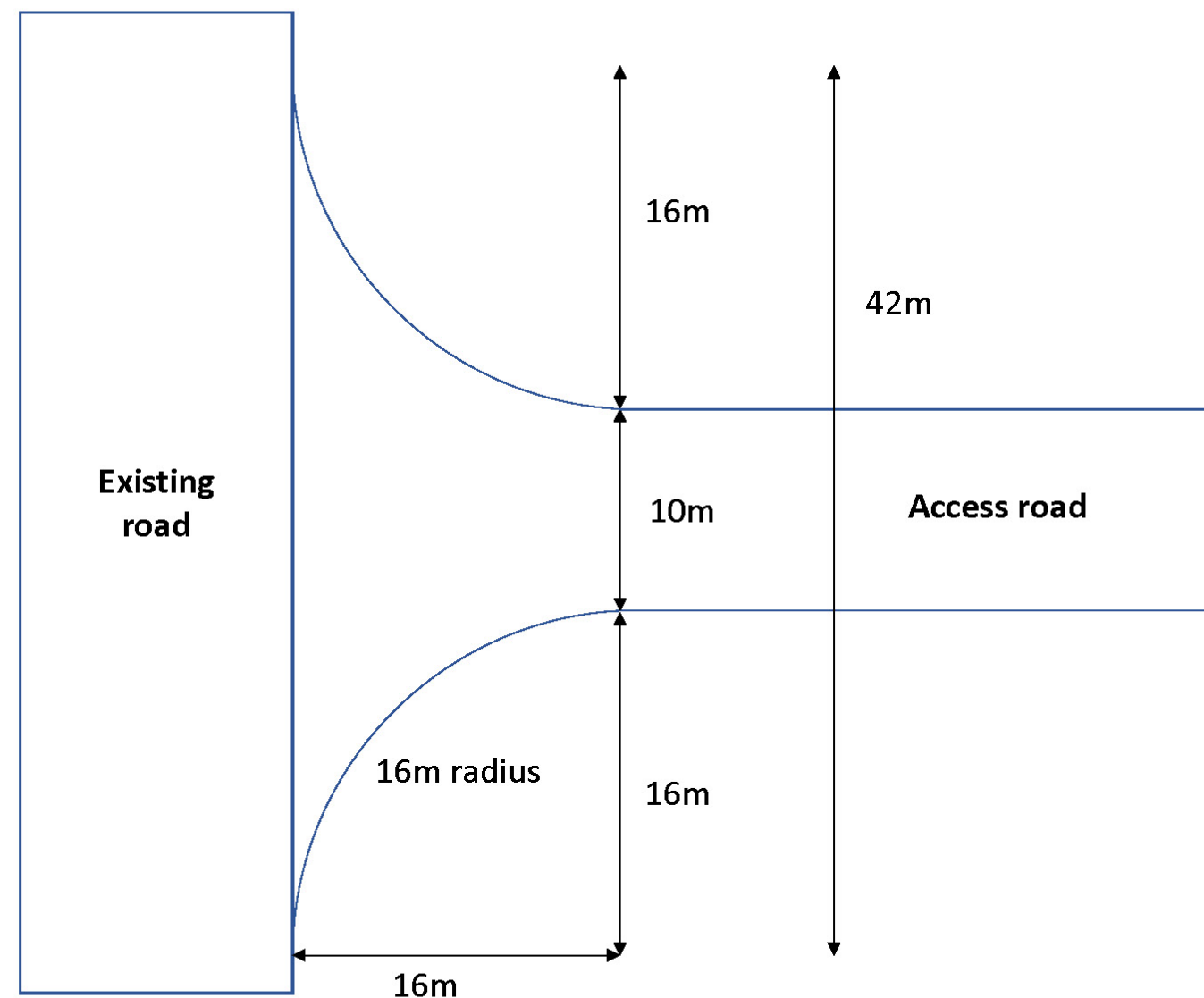
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HGV & LGV access both directions.



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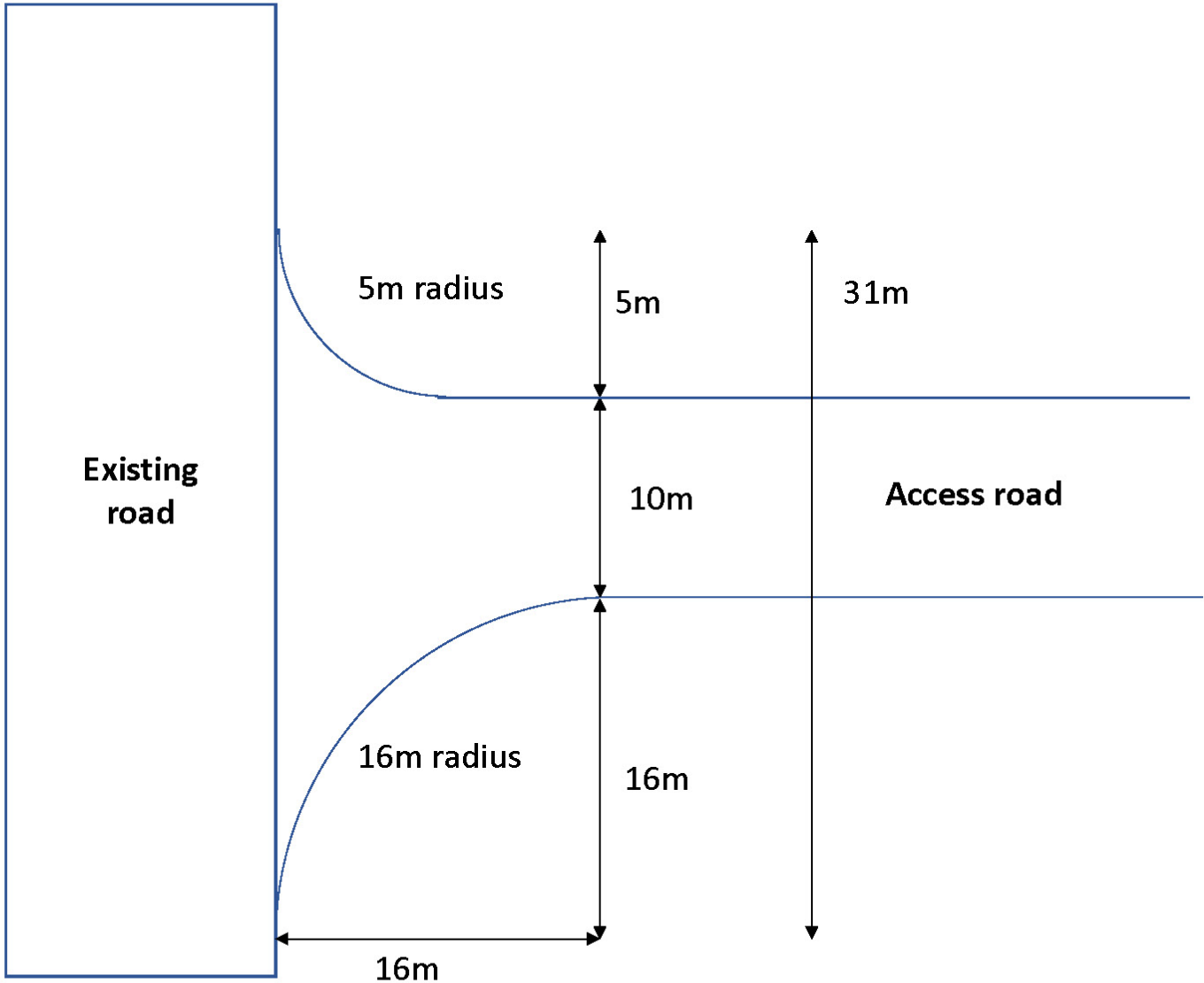
Figure 2.2
Typical Bellmouth
Example 1

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HGV access in one direction, LGV access in both directions.



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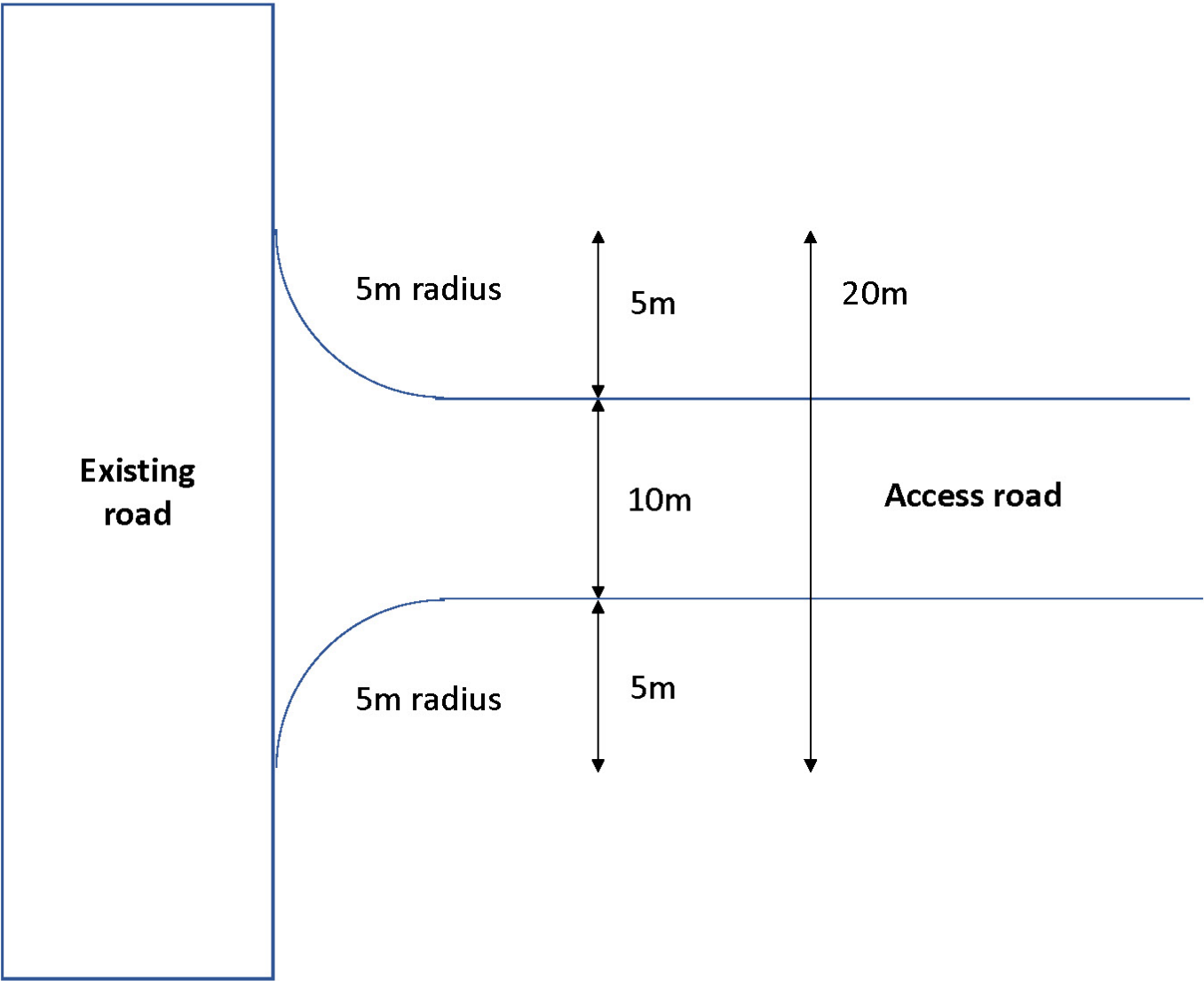
Figure 2.3
Typical Bellmouth
Example 2

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LGV access only.



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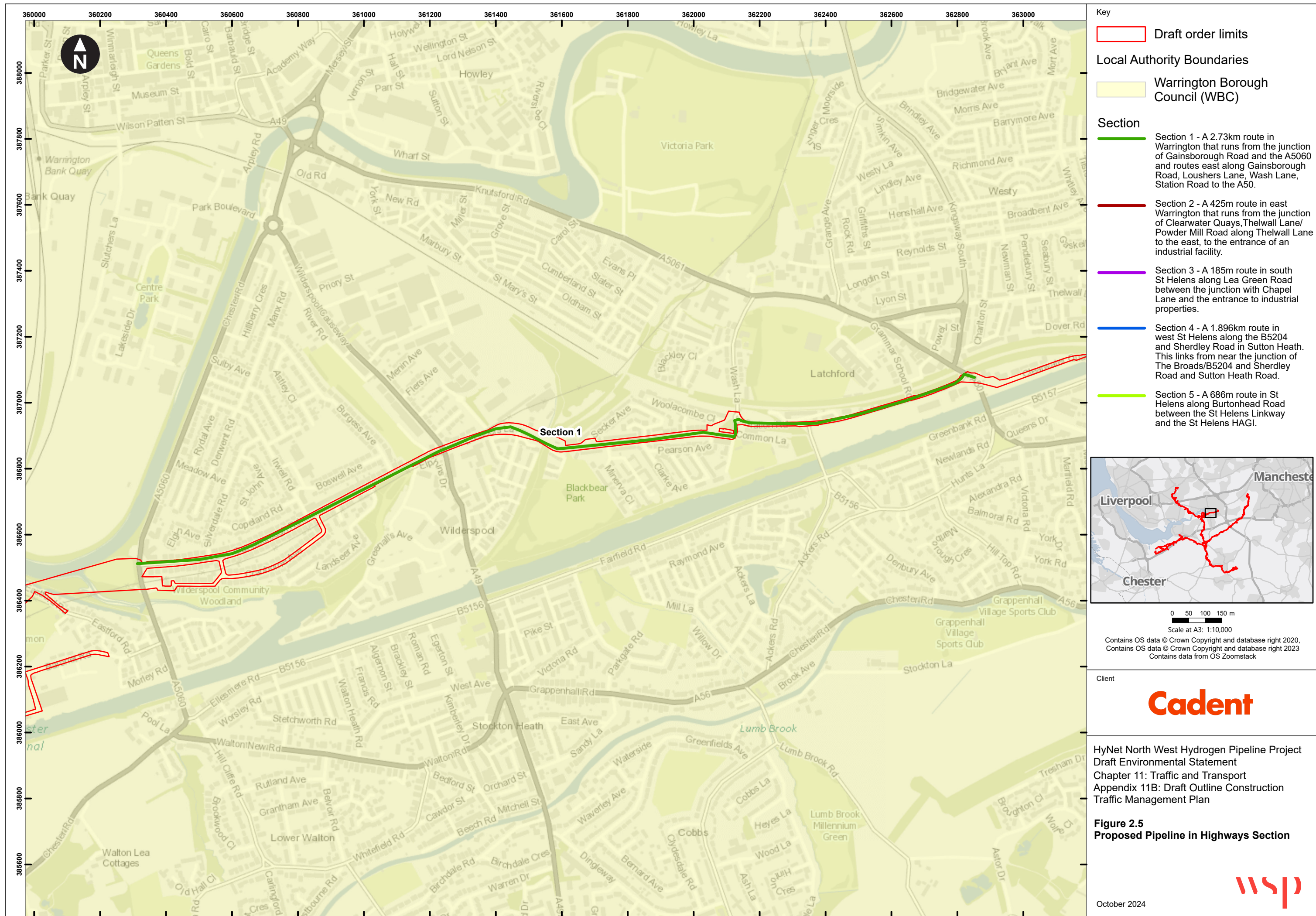


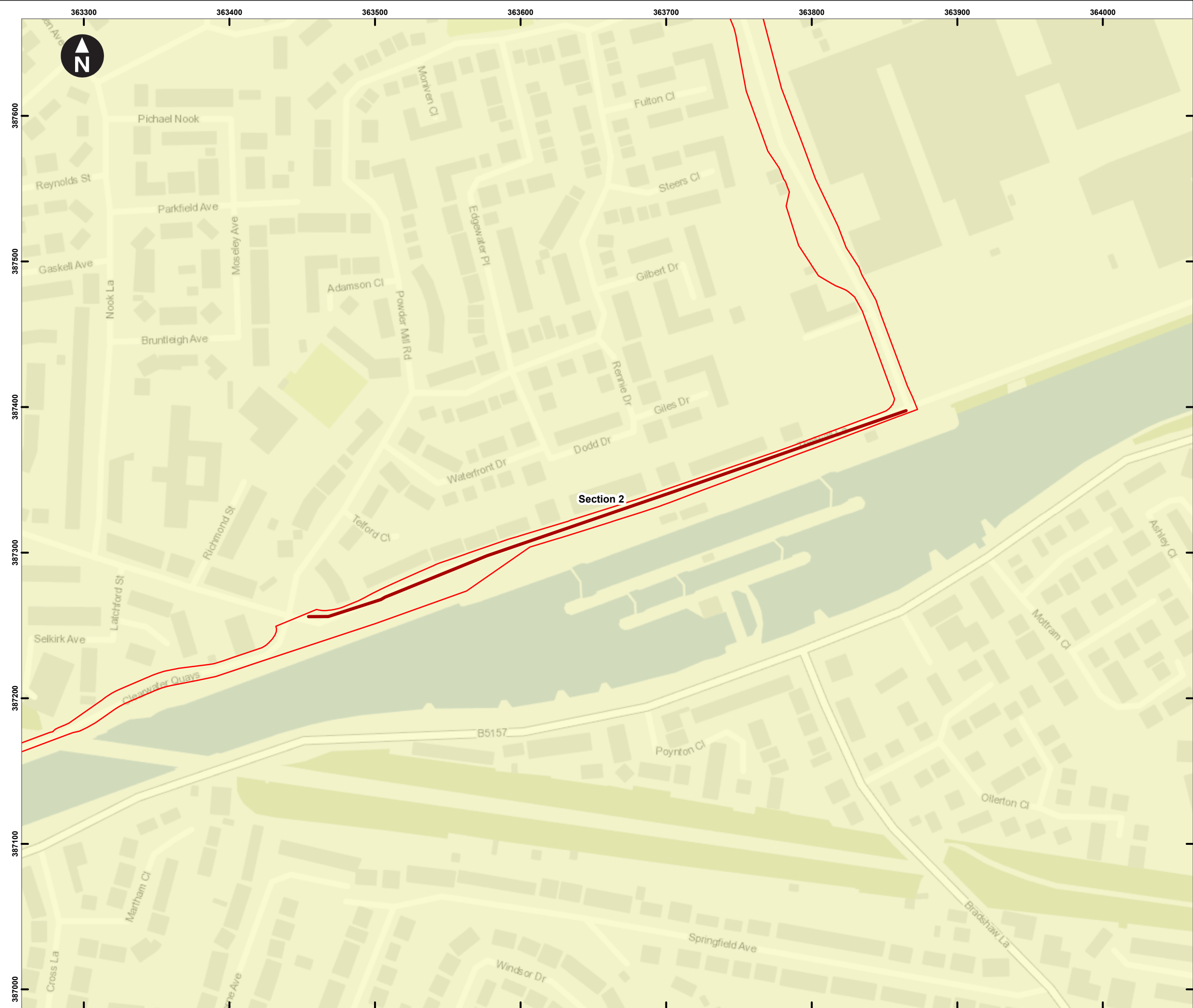
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Traffic Management Plan

Figure 2.4
Typical Bellmouth
Example 3

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Key

Draft order limits

Local Authority Boundaries

Warrington Borough Council (WBC)

Section

- Section 1 - A 2.73km route in Warrington that runs from the junction of Gainsborough Road and the A5060 and routes east along Gainsborough Road, Loushers Lane, Wash Lane, Station Road to the A50.
- Section 2 - A 425m route in east Warrington that runs from the junction of Clearwater Quays, Thelwall Lane/ Powder Mill Road along Thelwall Lane to the east, to the entrance of an industrial facility.
- Section 3 - A 185m route in south St Helens along Lea Green Road between the junction with Chapel Lane and the entrance to industrial properties.
- Section 4 - A 1.896km route in west St Helens along the B5204 and Sherdley Road in Sutton Heath. This links from near the junction of The Broads/B5204 and Sherdley Road and Sutton Heath Road.
- Section 5 - A 686m route in St Helens along Burtonhead Road between the St Helens Linkway and the St Helens HAGI.

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Scale at A3: 1:2,500

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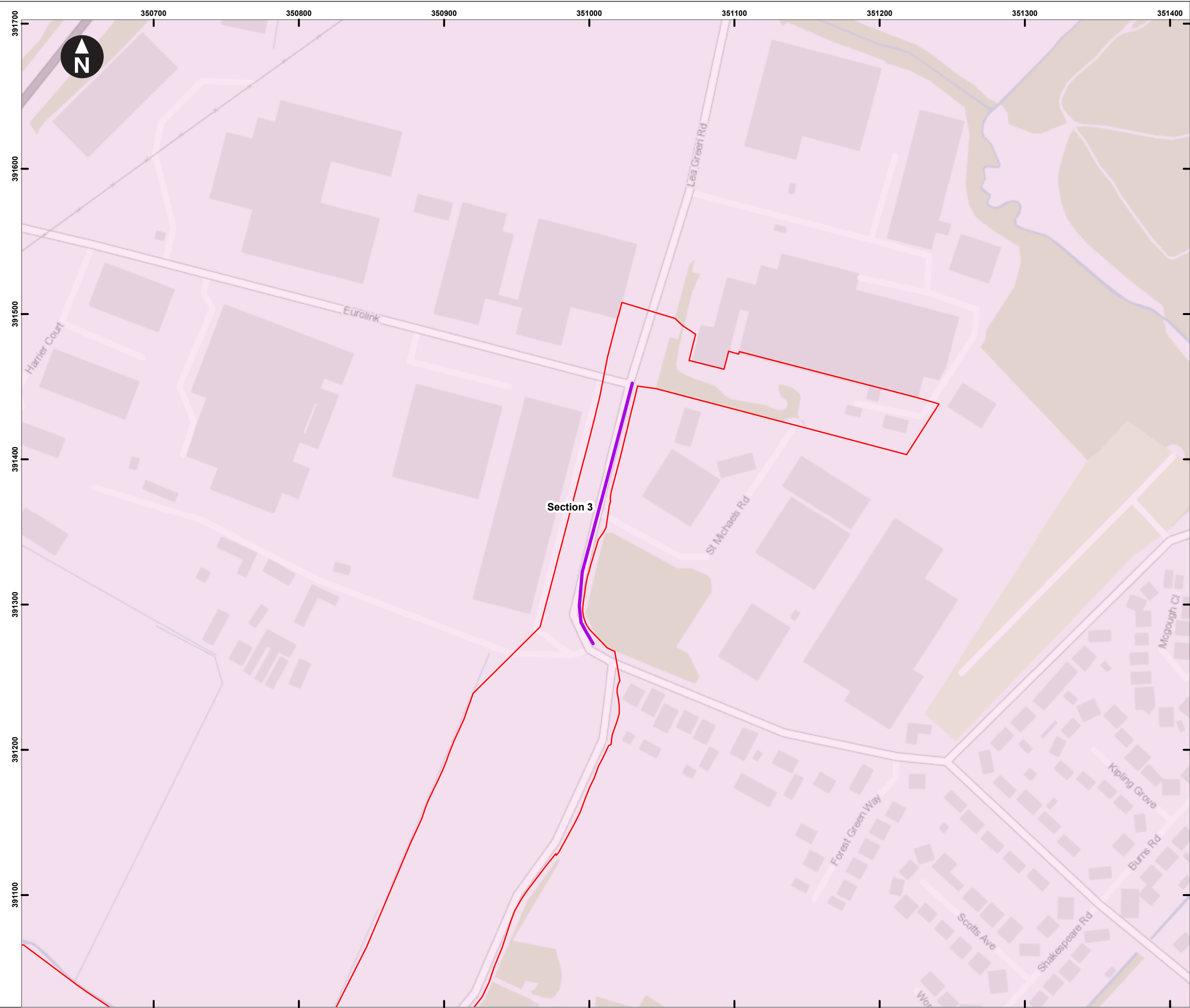
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Figure 2.5
Proposed Pipeline in Highways Section

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Key

Draft order limits

Local Authority Boundaries

St. Helens Borough Council (SHBC)

Section

— Section 1 - A 2.73km route in Warrington that runs from the junction of Gainsborough Road and the A5060 and routes east along Gainsborough Road, Loushers Lane, Wash Lane, Station Road to the A50.

— Section 2 - A 425m route in east Warrington that runs from the junction of Clearwater Quays, Thelwall Lane/ Powder Mill Road along Thelwall Lane to the east, to the entrance of an industrial facility.

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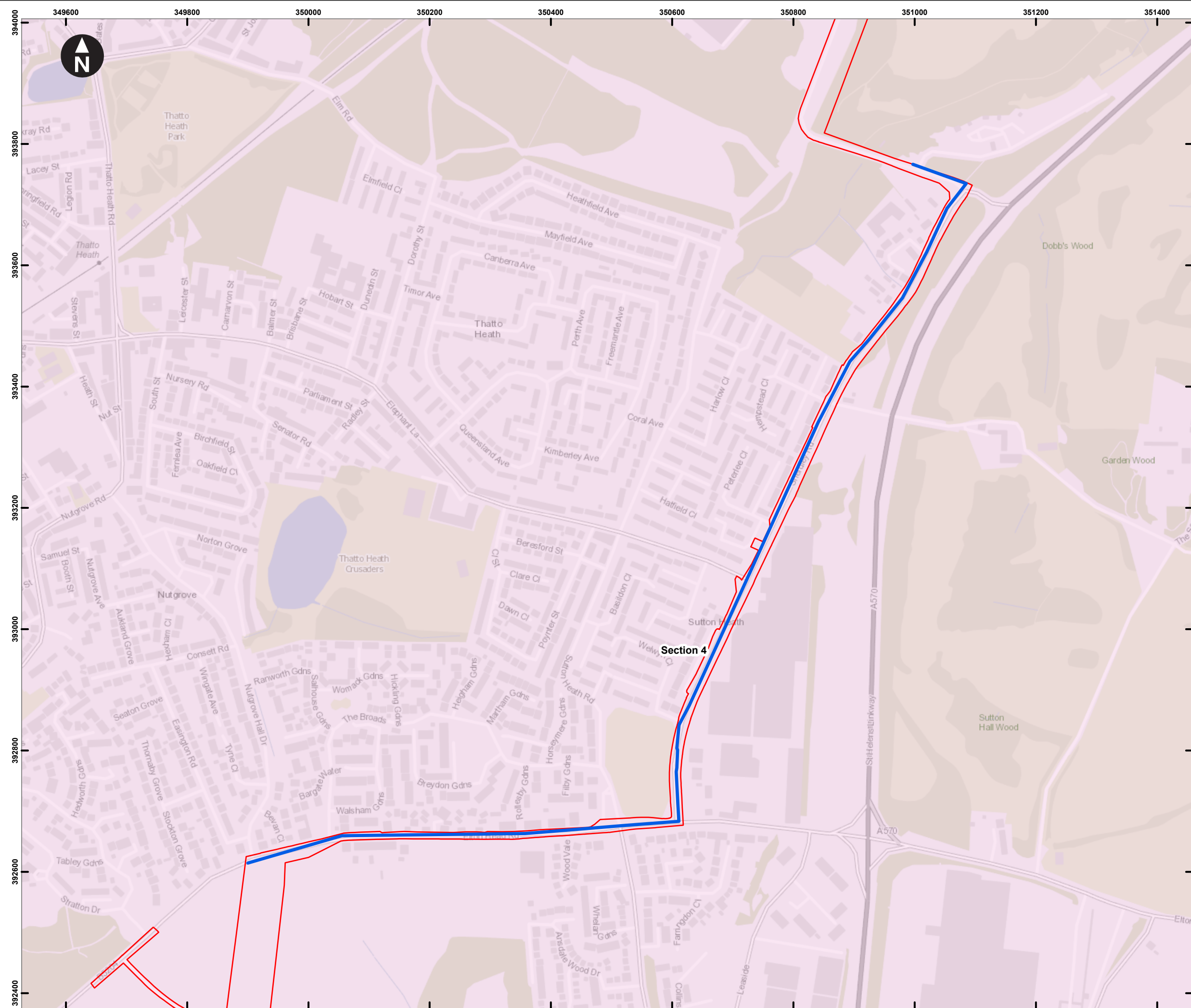
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Figure 2.5
Proposed Pipeline in Highways Section



- Key
- Draft order limits
- Local Authority Boundaries
- St. Helens Borough Council (SHBC)
- Section
- Section 1 - A 2.73km route in Warrington that runs from the junction of Gainsborough Road and the A5060 and routes east along Gainsborough Road, Loushers Lane, Wash Lane, Station Road to the A50.
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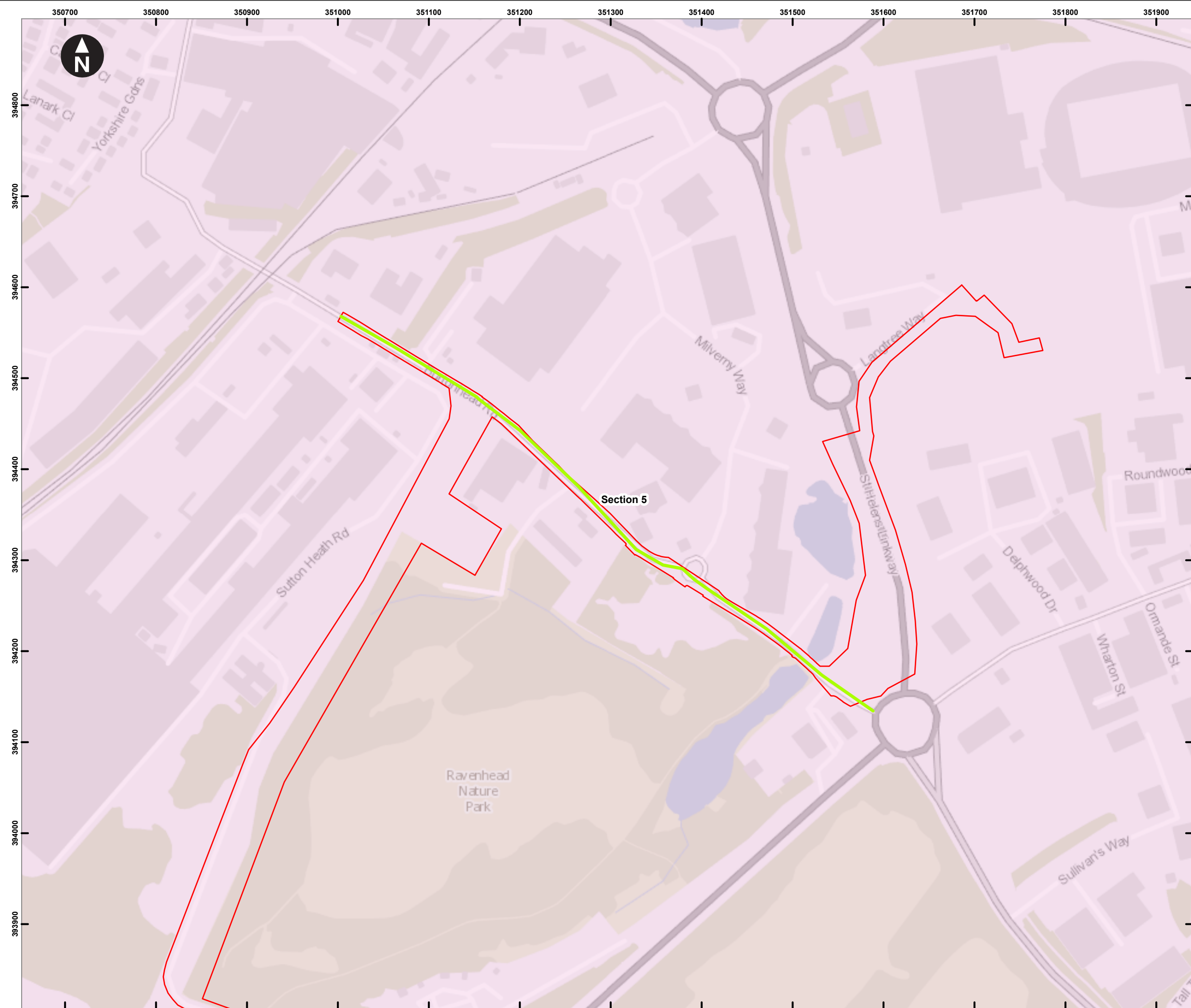
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Figure 2.5
Proposed Pipeline in Highways Section

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Key

Draft order limits

Local Authority Boundaries

St. Helens Borough Council (SHBC)

Section

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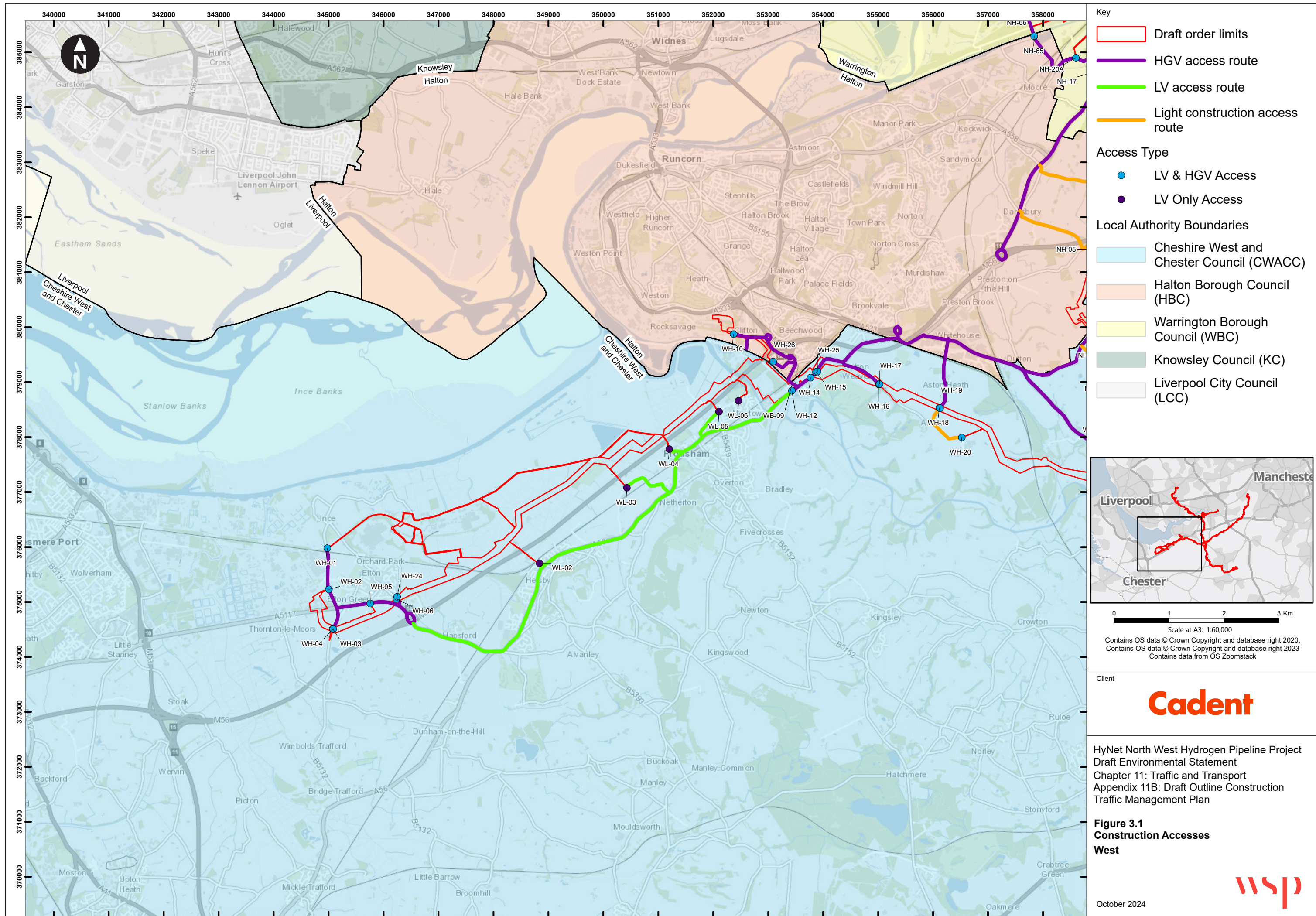
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Figure 2.5
Proposed Pipeline in Highways Section

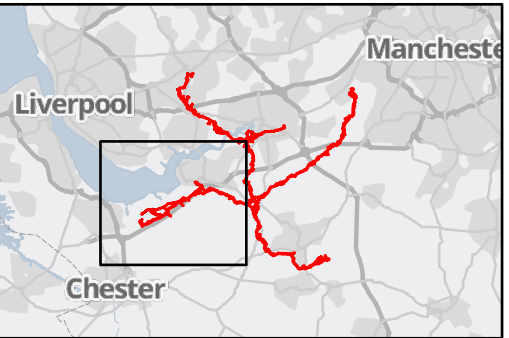
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- Key
- Draft order limits
 - HGV access route
 - LV access route
 - Light construction access route

- Access Type
- LV & HGV Access
 - LV Only Access

- Local Authority Boundaries
- Cheshire West and Chester Council (CWACC)
 - Halton Borough Council (HBC)
 - Warrington Borough Council (WBC)
 - Knowsley Council (KC)
 - Liverpool City Council (LCC)



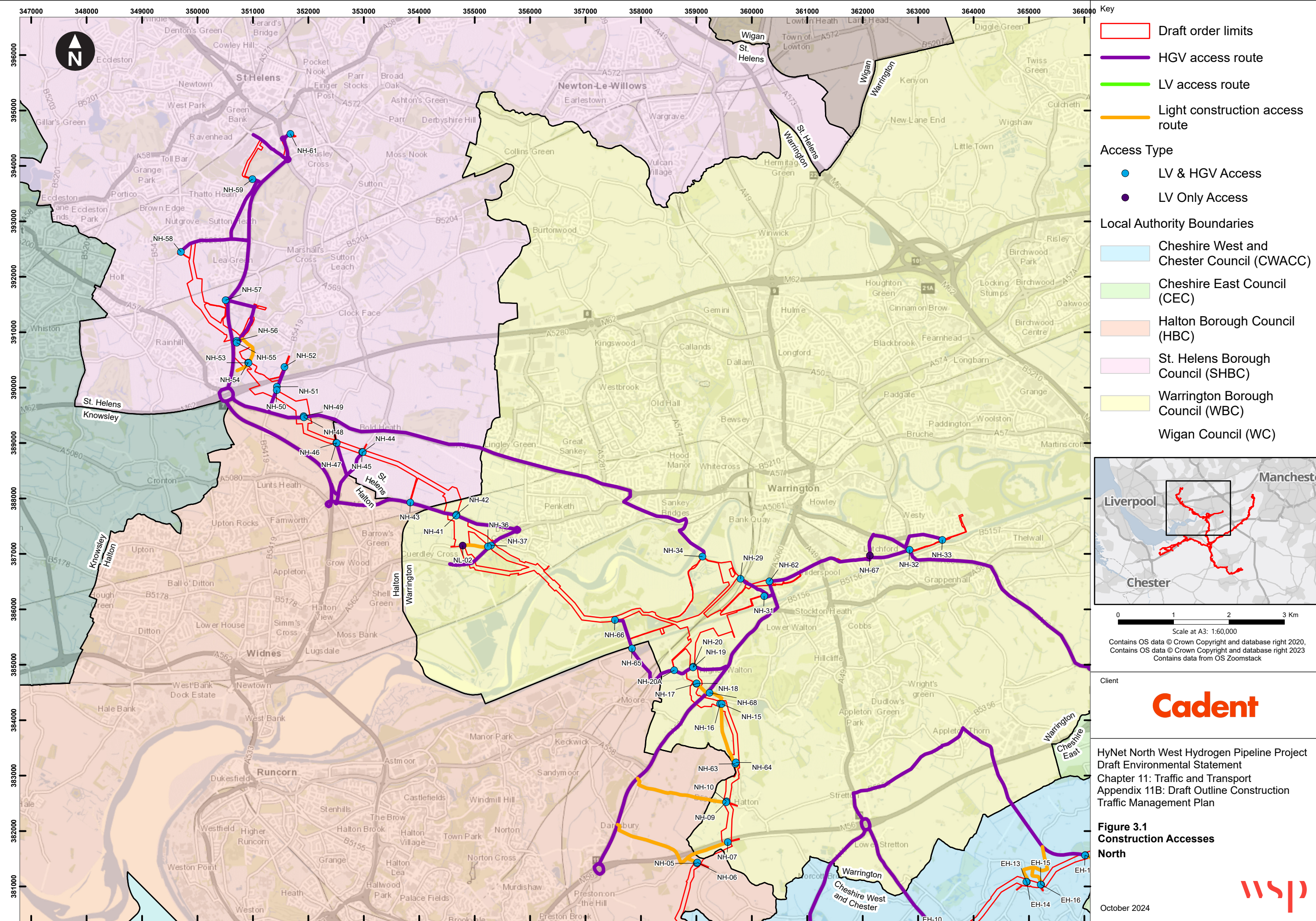
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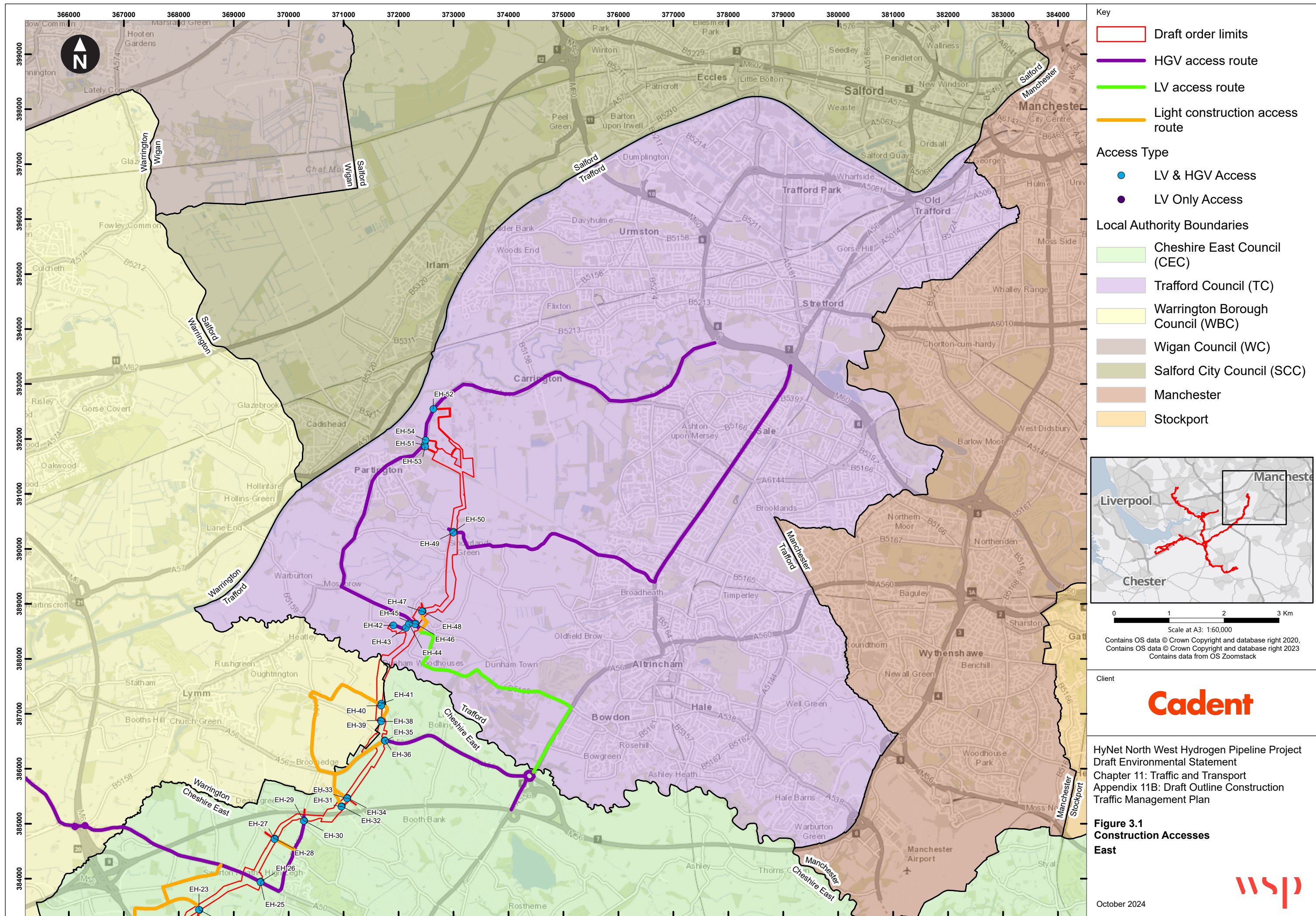
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**Figure 3.1
Construction Accesses
West**

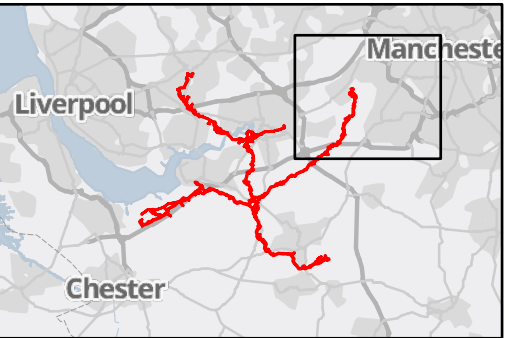




- Key
- Draft order limits
 - HGV access route
 - LV access route
 - Light construction access route

- Access Type
- LV & HGV Access
 - LV Only Access

- Local Authority Boundaries
- Cheshire East Council (CEC)
 - Trafford Council (TC)
 - Warrington Borough Council (WBC)
 - Wigan Council (WC)
 - Salford City Council (SCC)
 - Manchester
 - Stockport



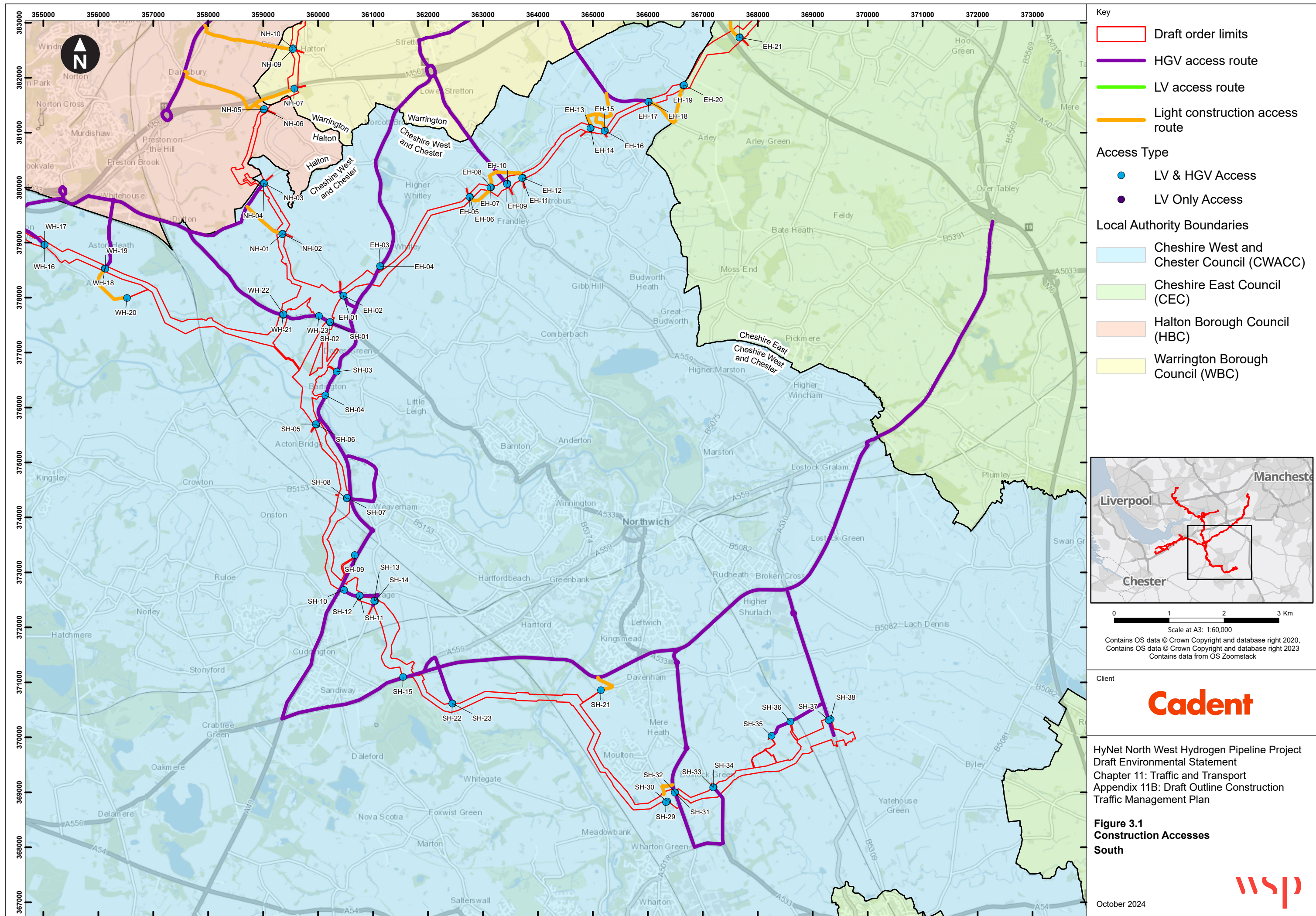
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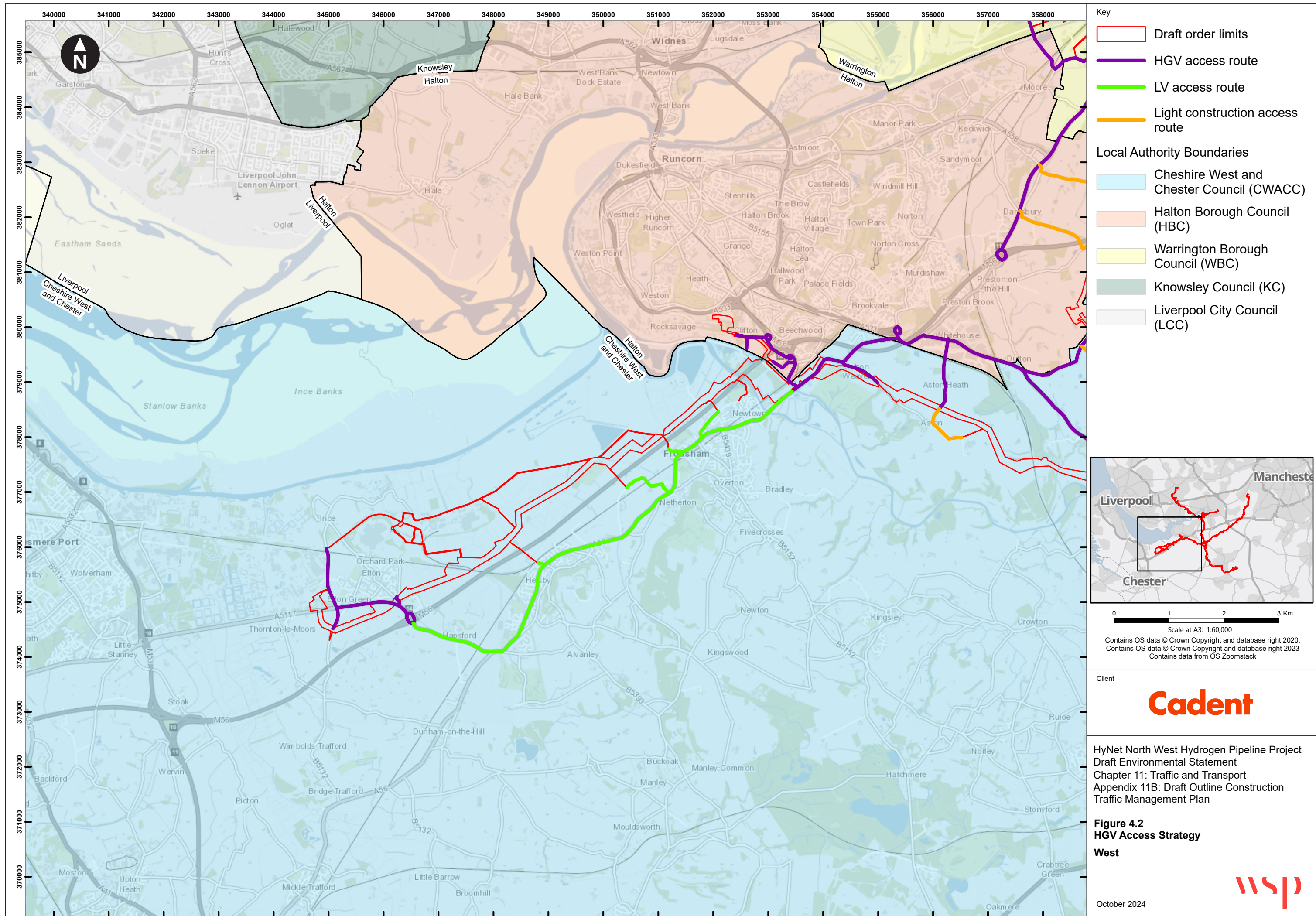
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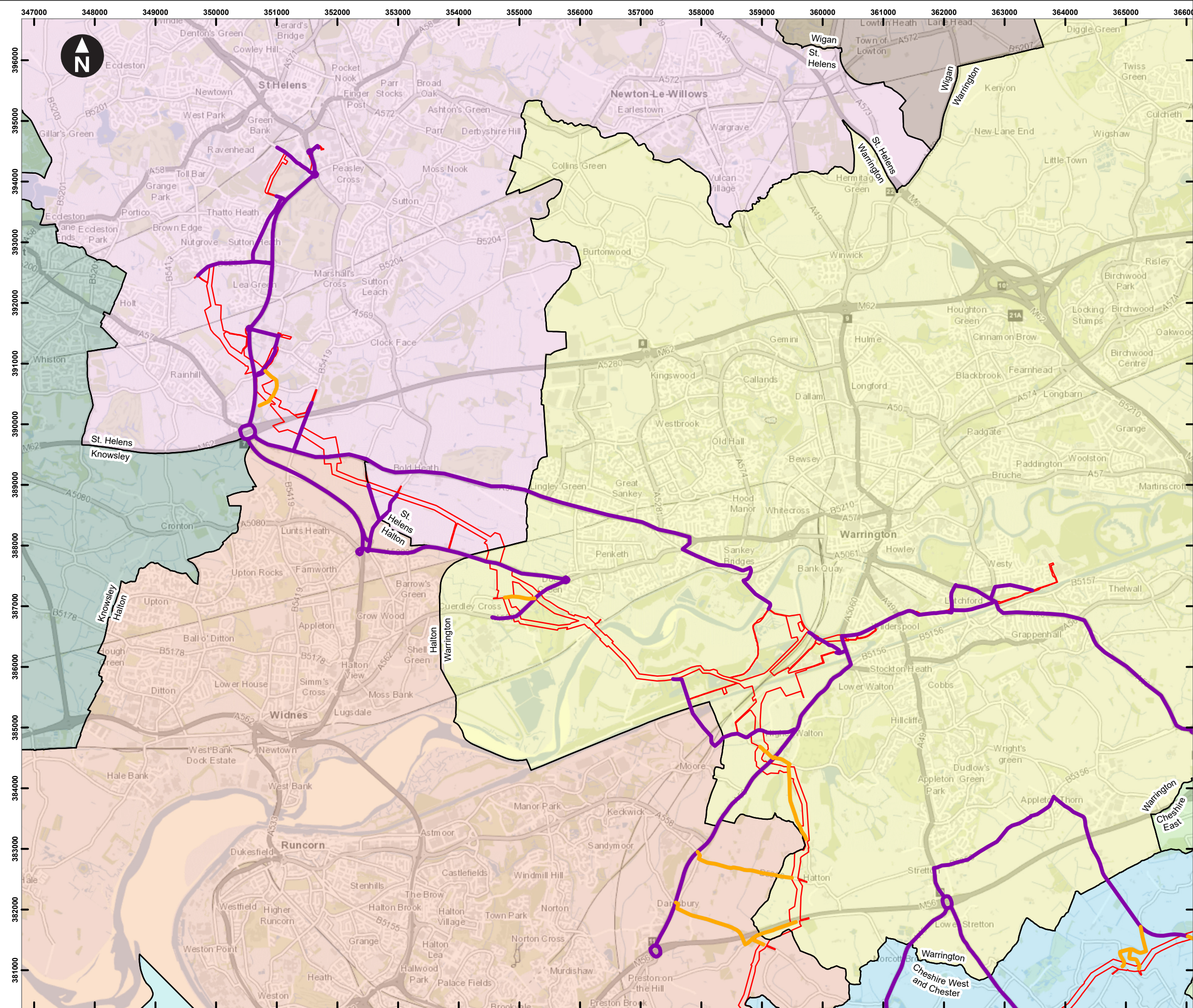
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Traffic Management Plan

**Figure 3.1
Construction Accesses
East**





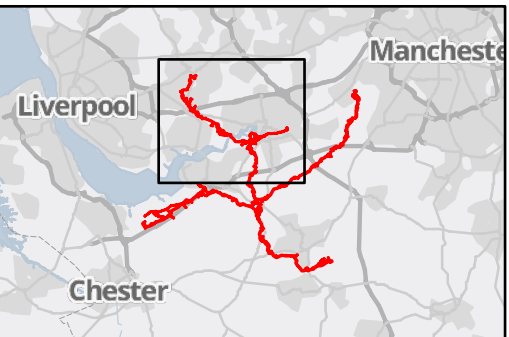


Key

- Draft order limits
- HGV access route
- LV access route
- Light construction access route

Local Authority Boundaries

- Cheshire West and Chester Council (CWACC)
- Cheshire East Council (CEC)
- Halton Borough Council (HBC)
- St. Helens Borough Council (SHBC)
- Warrington Borough Council (WBC)
- Wigan Council (WC)
- Knowsley Council (KC)



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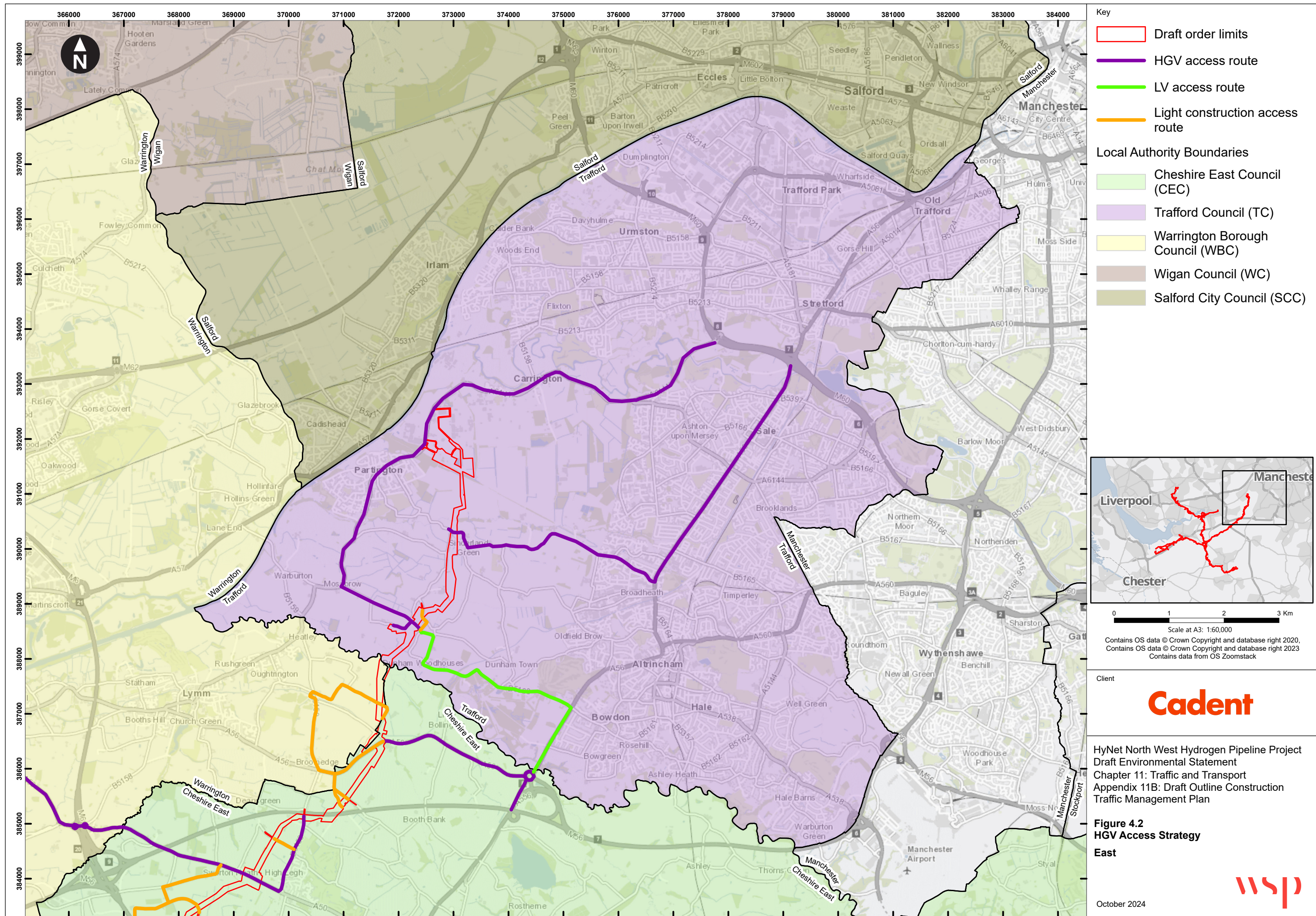
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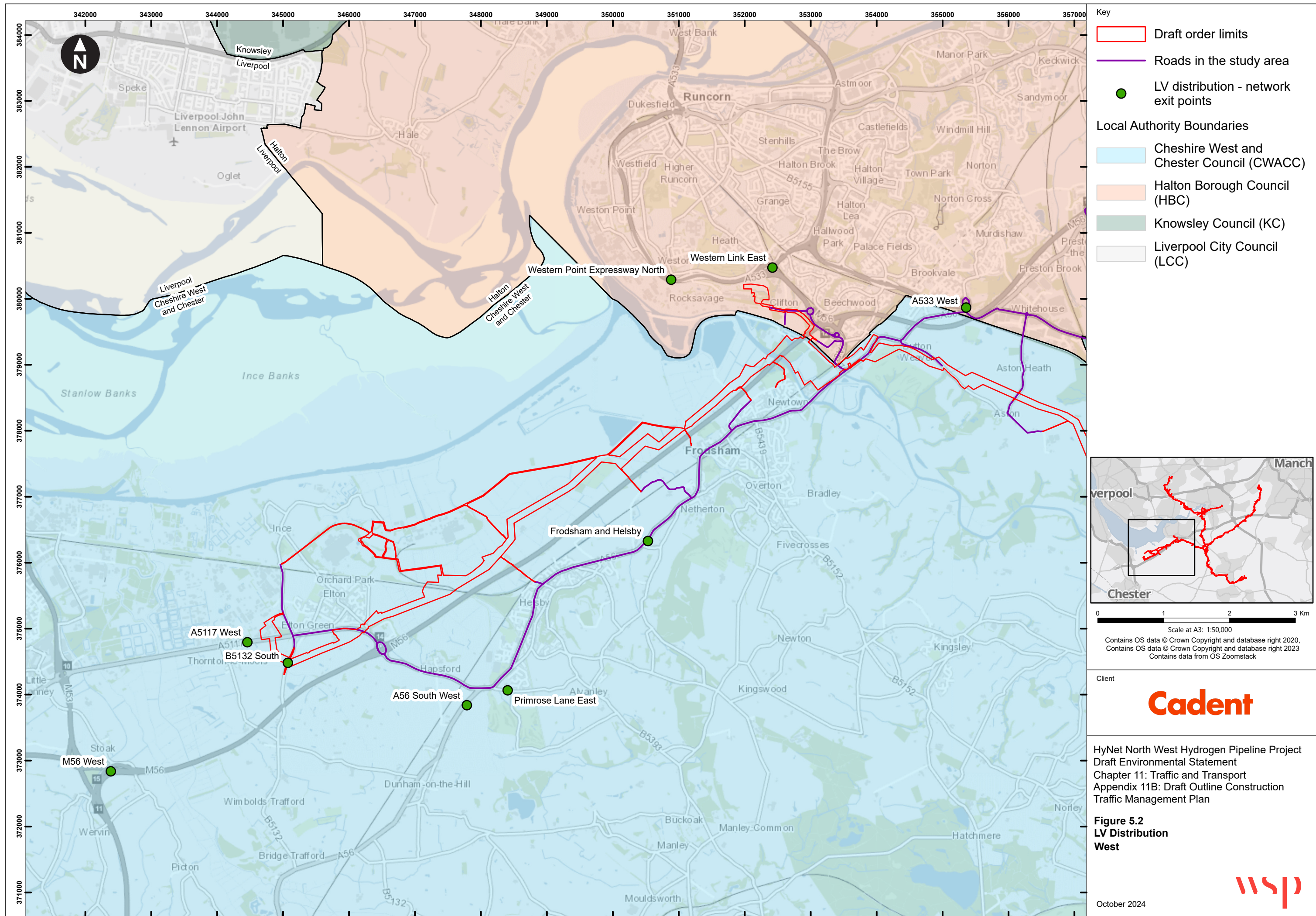
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Draft Environmental Statement
Chapter 11: Traffic and Transport
Appendix 11B: Draft Outline Construction
Traffic Management Plan

Figure 4.2
HGV Access Strategy
North

October 2024







- Key
- Draft order limits
 - Roads in the study area
 - LV distribution - network exit points
- Local Authority Boundaries
- Cheshire West and Chester Council (CWACC)
 - Halton Borough Council (HBC)
 - Knowsley Council (KC)
 - Liverpool City Council (LCC)



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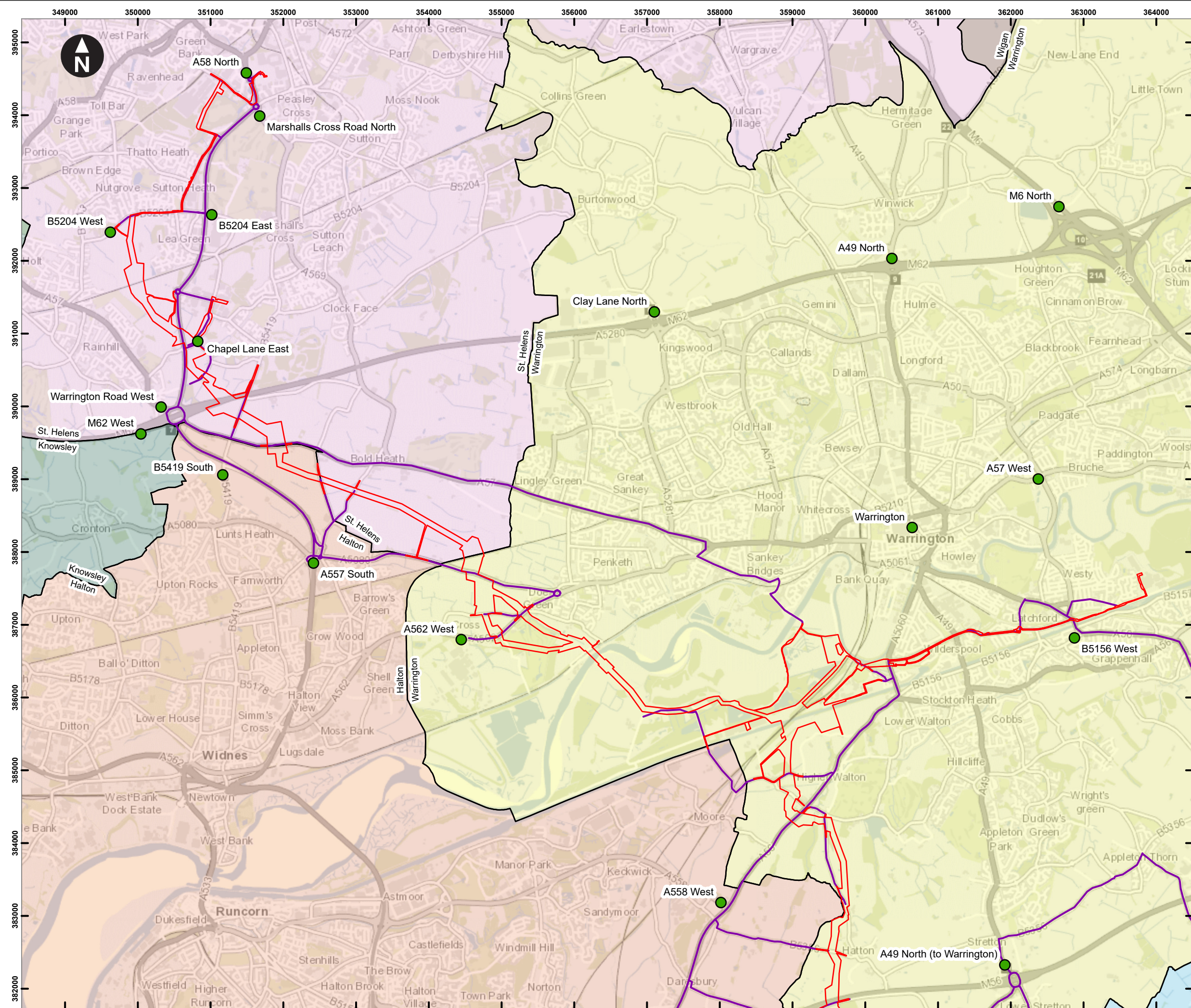
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Figure 5.2
LV Distribution
West



Key

- Draft order limits
- Roads in the study area
- LV distribution - network exit points

Local Authority Boundaries

- Cheshire West and Chester Council (CWACC)
- Halton Borough Council (HBC)
- St. Helens Borough Council (SHBC)
- Warrington Borough Council (WBC)
- Wigan Council (WC)
- Knowsley Council (KC)



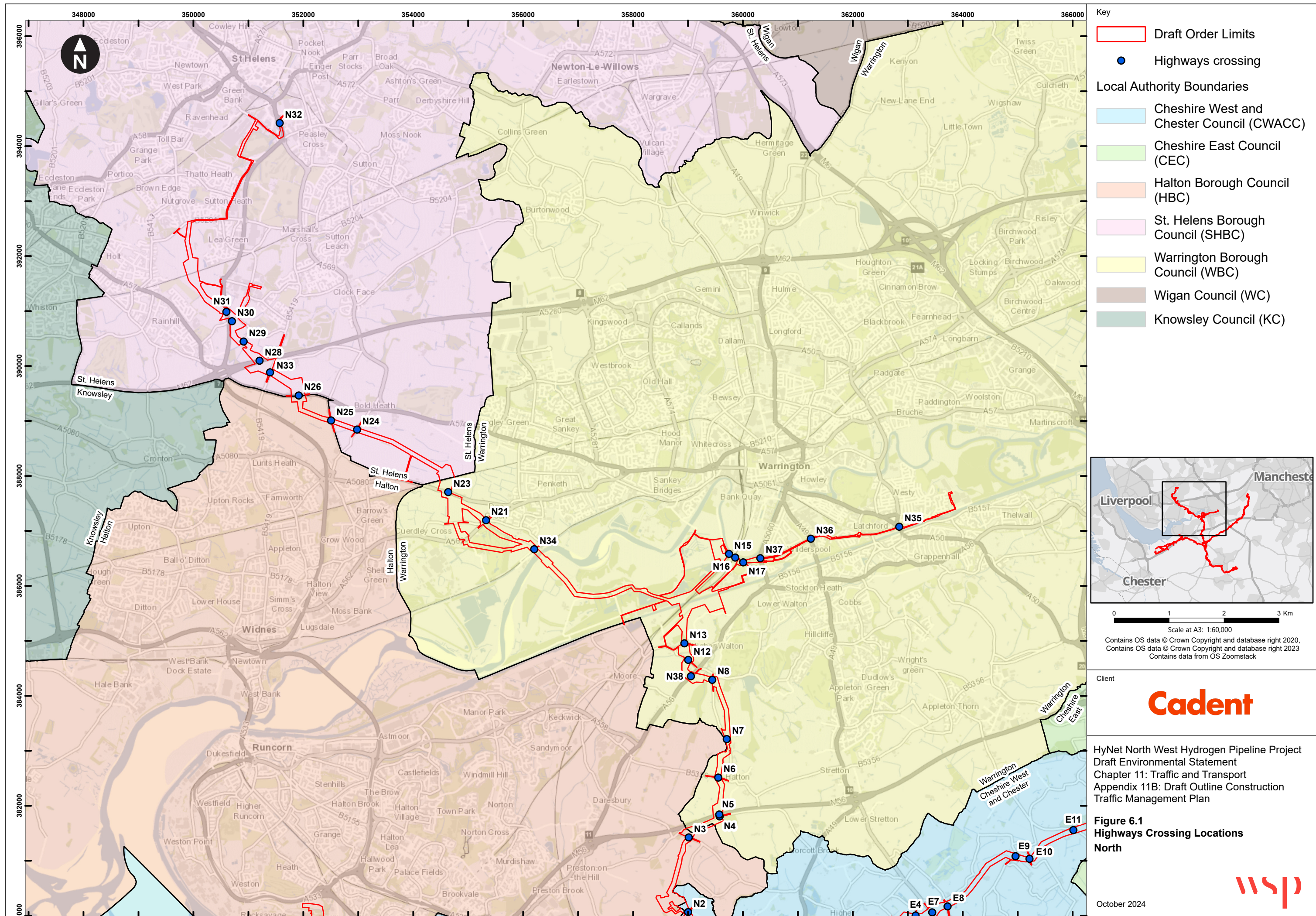
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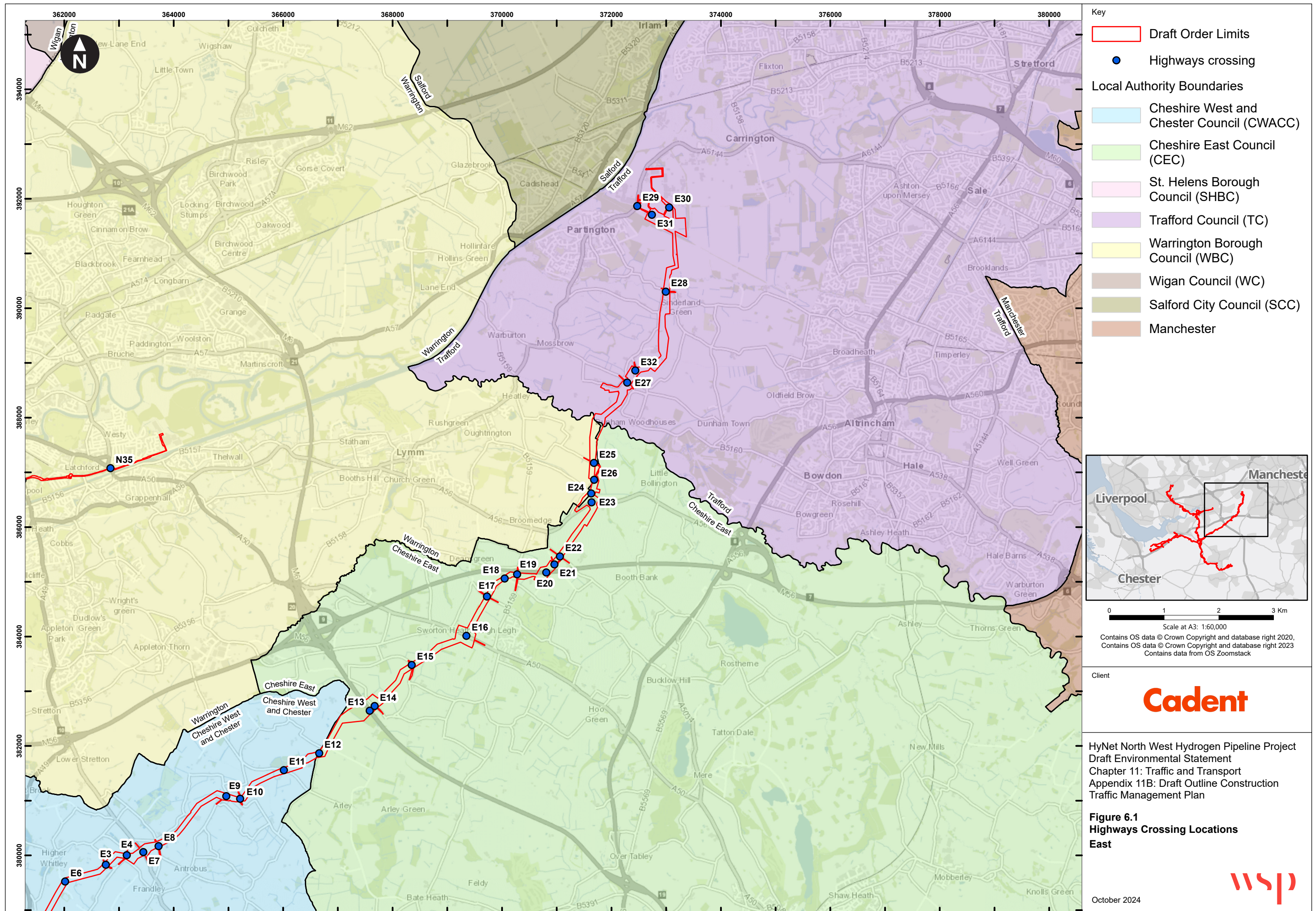
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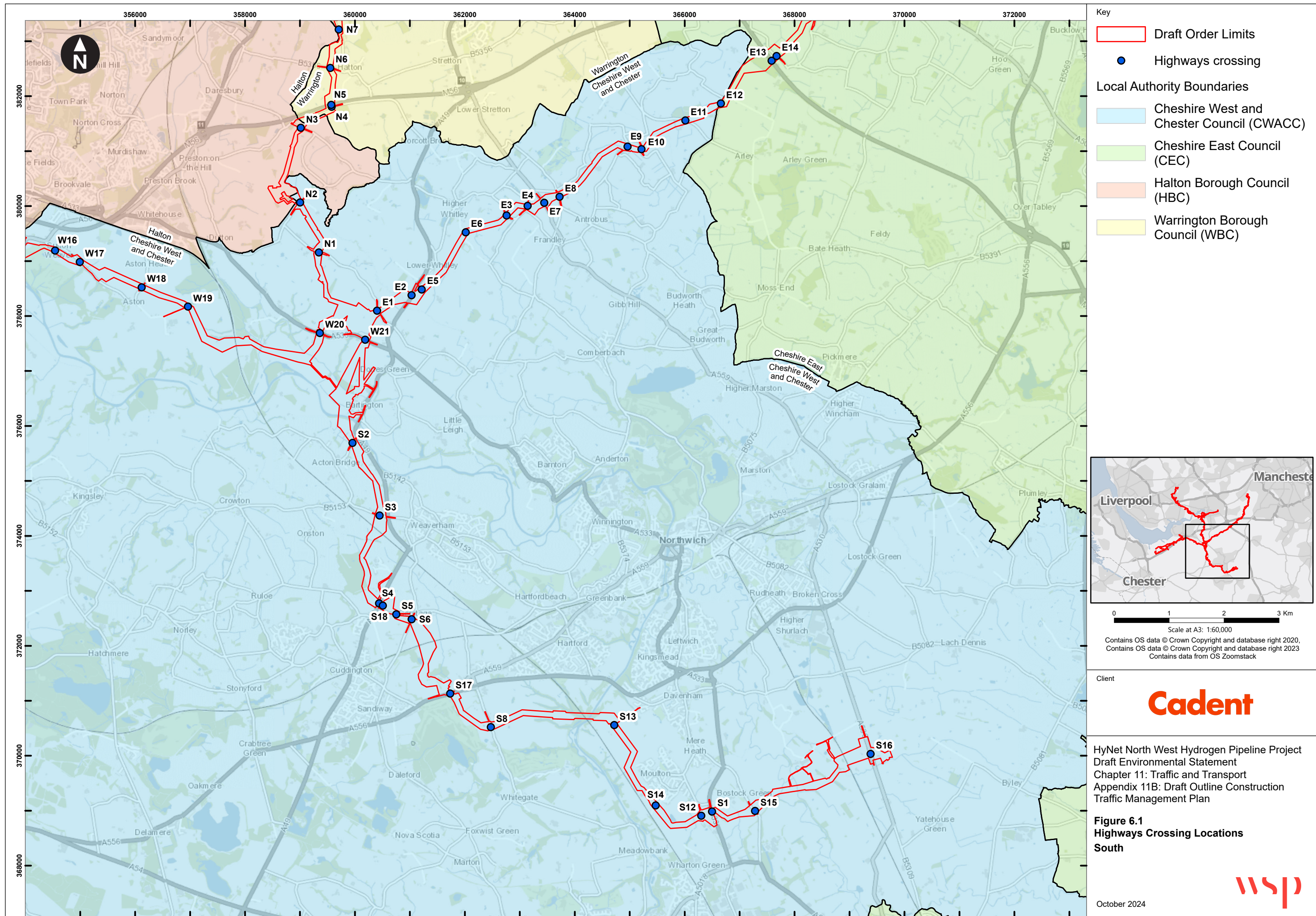
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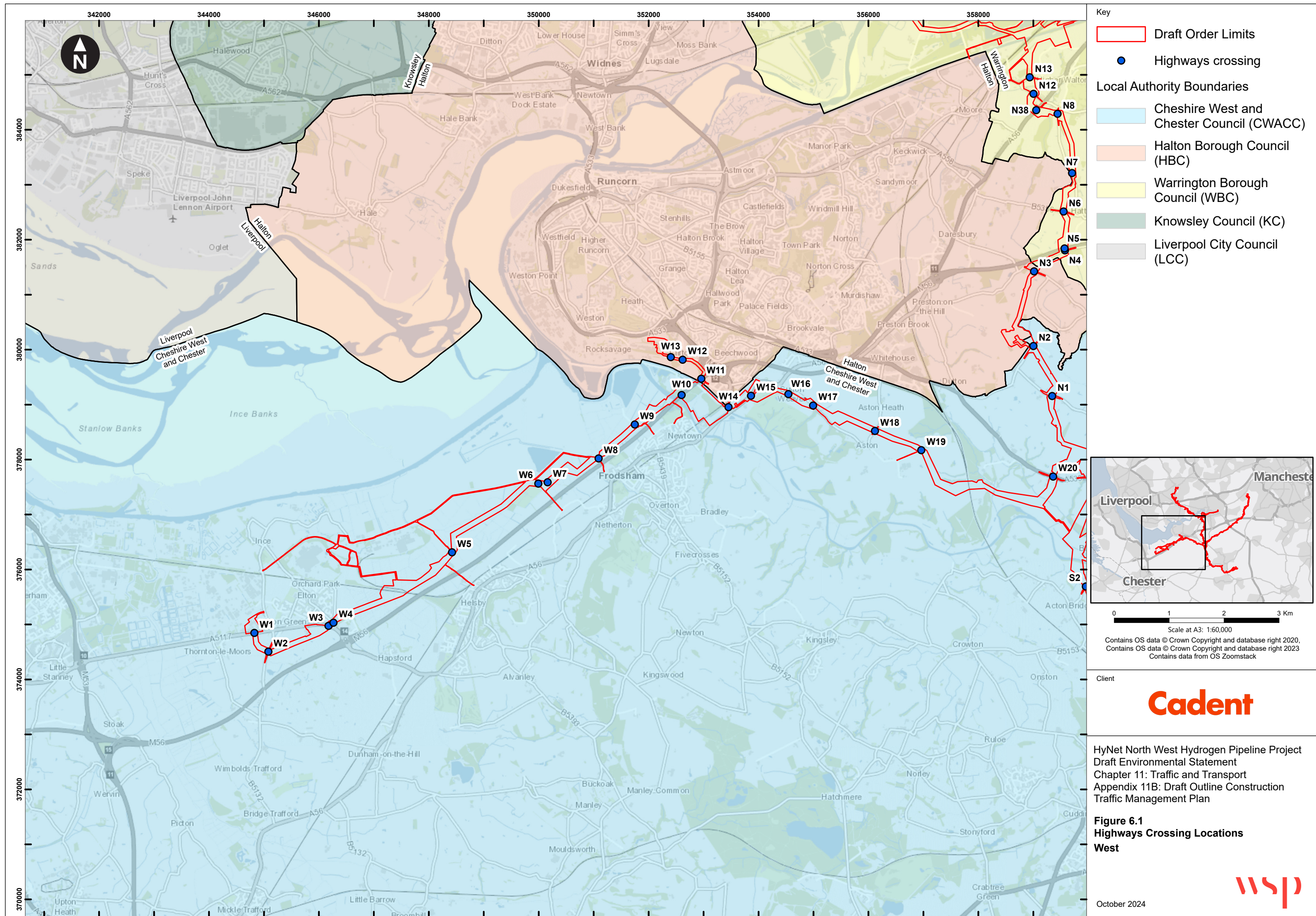
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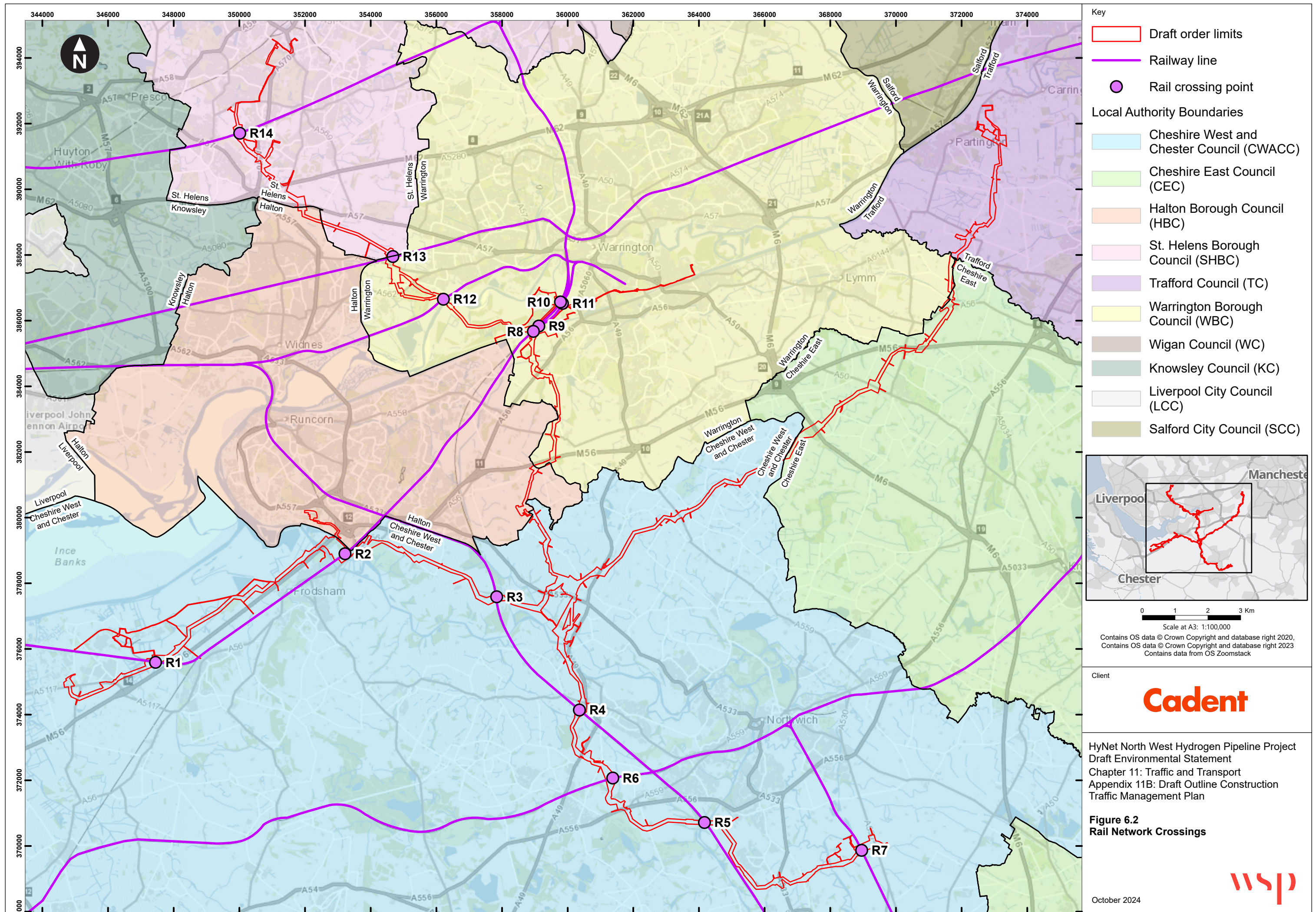
Figure 5.2
LV Distribution
North

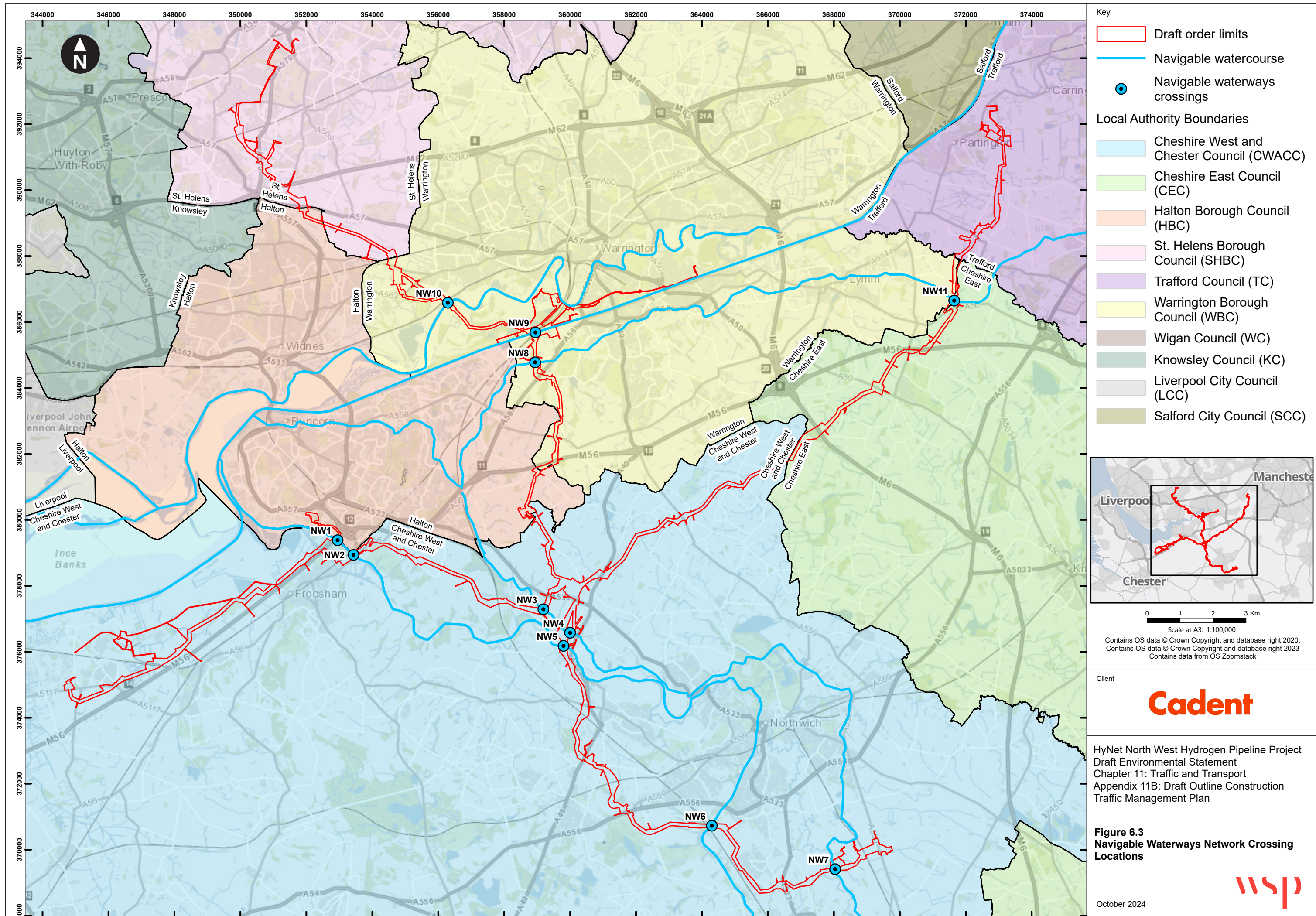












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